

SEP 22 1994

DUFRESNE-HENRY, INC.
Precision Park
NORTH SPRINGFIELD, VERMONT 05150

LETTER OF TRANSMITTAL

(802) 886-2261

TO: AGENCY OF NATURAL RESOURCES
HAZ. MAT. MAN. P.D.
103 SOUTH MAIN ST / WEST OFFICE
WATERBURY, VT 05671-0404

DATE <u>9/21/94</u>	JOB NO. <u>414032</u>
ATTENTION <u>MR. CHUCK SCHWER</u>	
RE: <u>TOWN OF WESTON GARAGE</u>	
<u>INITIAL SITE INVESTIGATION</u>	

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			REPORT WESTON TOWN GARAGE - INITIAL SITE INVESTIGATION

THESE ARE TRANSMITTED as checked below:

- | | | |
|--|---|---|
| <input type="checkbox"/> For approval | <input type="checkbox"/> Approved as submitted | <input type="checkbox"/> Resubmit _____ copies for approval |
| <input checked="" type="checkbox"/> For your use | <input type="checkbox"/> Approved as noted | <input type="checkbox"/> Submit _____ copies for distribution |
| <input type="checkbox"/> As requested | <input type="checkbox"/> Returned for corrections | <input type="checkbox"/> Return _____ corrected prints |
| <input type="checkbox"/> For review and comment | <input type="checkbox"/> _____ | |
| <input type="checkbox"/> FOR BIDS DUE _____ 19____ <input type="checkbox"/> PRINTS RETURNED AFTER LOAN TO US | | |

REMARKS _____

COPY TO _____

SIGNED: Bruce Cox

SEP 22 1994

Phase (check one)	Type (check one)
<input checked="" type="checkbox"/> Initial Site Investigation	<input type="checkbox"/> Work Scope
<input type="checkbox"/> Corrective Action Feasibility Investigation	<input checked="" type="checkbox"/> Technical Report
<input type="checkbox"/> Corrective Action Plan	<input type="checkbox"/> PCF Reimbursement Request
<input type="checkbox"/> Corrective Action Summary Report	<input type="checkbox"/> General Correspondence

**INITIAL
SITE INVESTIGATION**

**Town Garage
Greendale Road
Weston, VT 05161**

**SMS Site #94-1622
UST Facility #2357**

**A Facility Owned By:
Town of Weston
P.O. Box 98
Weston, VT 05161
(802) 824-4121
Contact: Mr. Donald Hart**

**Prepared By:
Dufresne-Henry, Inc.
Precision Park
North Springfield, VT 05150
(802) 886-2261
Contact: Bruce H. Cox, P.E.**

September 21, 1994

TABLE OF CONTENTS

Description	Page
EXECUTIVE SUMMARY	ii
INTRODUCTION	1
WORK AND HEALTH AND SAFETY PLANS	2
SITE DESCRIPTION	2
SITE HISTORY	2
MONITORING WELL INSTALLATION	3
SITE GEOLOGY	4
SITE HYDROGEOLOGY	5
POTENTIAL RECEPTORS	5
MONITORING WELL SAMPLING	6
DISCUSSION	6
SUMMARY AND RECOMMENDATIONS	7

APPENDICES

- A - Site Location map
- B - Site Investigation Request, Work Plan, Site Health and Safety Plan
- C - Site Plan
- D - Boring Logs and Well Installation Report
- E - Groundwater Plan
- F - Laboratory Analytical Report

EXECUTIVE SUMMARY

An Initial Site Investigation has been completed at the Town Garage in Weston, Vermont. The investigation was in response to the discovery of diesel fuel contaminated soil during a Tank Closure Assessment in May and June 1994. The primary area of contamination was the dispenser at the northwest corner of the Garage, with trace amounts at the tank location. Approximately 12 cubic yards of soil were excavated and polyencapsulated on-site.

Four groundwater monitoring wells were installed upgradient and downgradient of the estimated limits of contamination. PID readings of soil boring samples were below State guidelines for backfilling. The four monitoring wells and the Garage water well were sampled and analyzed by EPA Method 8240. Total Volatile Hydrocarbons at concentrations $< 1,100 \mu\text{g/L}$ were found in the two wells closest to the former tank and dispenser. No compounds above detection limits were found in the other monitoring wells or in the Garage water supply well. There are no groundwater Standards for Total Volatile Petroleum Hydrocarbons. The effected area appears to be limited to an area of less than 1,000 square feet. The nearest groundwater well (other than the Garage well) and surface water in the downgradient direction are approximately 350 feet away. It is expected that the contamination will be naturally biodegraded before reaching those potential receptors. The contaminated soil polyencapsulated on-site has been removed for asphalt batching.

Based on these findings, no further environmental investigations are recommended for this site.

**INITIAL SITE INVESTIGATION
WESTON TOWN GARAGE
WESTON, VERMONT**

Introduction

The Town Garage is located on the south side of Greendale Road (TH #22) approximately 1,000 feet west of VT Route 100 in Weston, Vermont. A site location map is included as Appendix A.

Dufresne-Henry, Inc. performed a tank closure assessment at the site on May 26 and June 2, 1994. Excavation, removal, and cleaning of the tanks was done on May 25, 1994. The subject tanks were one (1) 1,000 gallon diesel fuel tank, and one (1) 500 gallon gasoline tank. The gasoline tank was installed in the 1960's. It was found to be in good condition with no evidence of perforations or contamination observed. The diesel fuel tank was installed in approximately 1981. Trace amounts of contamination were detected in the excavated soil for that tank. Headspace PID readings (HNU, 10.2 eV lamp, calibrated with isobutylene) from 0 - 1.8 ppm were observed. The tank was in good condition with no perforations observed. Oil saturated soils were noted below the diesel pump with PID readings of 50 ppm. On June 2, 1994 the area in the vicinity of the diesel pump was excavated. PID readings up to 55 ppm were observed. Approximately 12 cubic yards of contaminated soil were excavated and polyencapsulated on-site. Excavation was continued until PID readings of less than 10 ppm were obtained. It is our understanding that the polyencapsulated soil was transported off site by Lee's Oil Service, Inc. for disposal by asphalt batching.

Work and Health and Safety Plans

As a result of the findings of the Tank Closure Assessment, the SMS requested additional investigations at the Town Garage in their letter of July 6, 1994. A copy of that letter is included in Appendix B. Dufresne-Henry prepared a Work Plan, and a Health and Safety Plan for the proposed activities at the site. Copies of these documents will also be found in Appendix B. A copy of the proposed work plan was sent to the HMMD via fax on August 11, 1994. Verbal approval was received on August 19, 1994. The remainder of this report describes activities and subsequent findings based on that work plan.

Site Description

The 2.7± acre site consists of a four bay garage, a separate salt shed, storage areas for various equipment, and stockpiles of sand and gravel. There are two (2) UST's currently on the site; (1) 1,000 gallon double wall steel tank for diesel fuel, and (1) 500 gallon #2 heating oil tank. The property is surrounded by fields and open land belonging to the Weston Recreation Club, Inc. to the west, south, and east, residential property to the east, and by Greendale Road and residential property to the north. The land slopes gently to the south. Greendale Brook is within 450± feet to the southwest. There is an on-site septic system and a drilled rock well.

Site History

The history of the site is not completely known. The Town of Weston has maintained a garage at the site since at least the 1960's. A 500 gallon single wall UST for gasoline was installed in the 1960's. Its use was discontinued in 1989. A 1,000 gallon single wall UST for diesel fuel was installed in approximately 1981. It

was in use until May 1994 when both of the tanks were removed. A 1,000 gallon double wall steel UST for diesel fuel was installed on June 2, 1994. That tank has a self-contained pump. There is a 500 gallon #2 heating oil UST on the site. It is used for heating the Garage.

Other than the petroleum products noted above, additional hazardous materials used and stored at the garage include motor oil, hydraulic oil, grease, antifreeze and other automotive fluids, cleaning products, and paint. Road salt is stored in a separate closed building. With the possible exception of UST overfills, no spills or releases were disclosed.

Monitoring Well Installation

Four (4) shallow groundwater monitoring wells were installed on August 16, 18, and 19, 1994 by M & W Soils Engineering, Inc. of Charlestown, New Hampshire. All borings and well installations were under the field observation of Dufresne-Henry personnel. The wells are designated MW-1 through MW-4. One well was installed northeasterly of the northwestern corner of the garage in a presumably upgradient location. One well was installed just southwesterly of the former diesel pump. The other two wells were installed westerly and southerly of the former diesel fuel UST. A site sketch showing the well locations is included as Appendix C. Logs of the borings and monitoring well installation reports are included in Appendix D.

During boring advancement split spoon soil samples were taken at various intervals depending on discovered and expected conditions. All samples were screened for the presence of Volatile Organic Compounds (VOC's) with an HNU HW-101 photoionization detector (10.2 eV lamp, calibrated with isobutylene). In MW-1 PID readings ranged from 2.2 ppm to 4.6 ppm when samples were headspaced

at ambient temperature. No visual or olfactory evidence of contamination was observed in the samples or on the drilling tools. In MW-2 PID readings of .1 ppm to 2.4 ppm were observed. No visual or olfactory evidence of contamination was observed in the samples or on the tools. In MW-3 PID readings ranged from 0 ppm to .2 ppm. No evidence of contamination was observed. In MW-4 a peak PID reading of 1.8 ppm was observed with no other evidence of contamination noted. PID readings of 3.4 ppm and 4 ppm were observed in test boring P-1.

A two inch diameter PVC monitoring well was installed in each boring, with the exception of P-1. Well MW-1 consists of 7' of .010" machine slotted screen. Wells MW-2, MW-3, and MW-4 consist of 5' of the same screen. Each well was backfilled with clean silica sand to a point above the screen and a bentonite seal installed. The wells were protected at the ground surface by grouting in waterproof aluminum monitoring well boxes.

Site Geology

The site is located near the confluence of the West River and Greendale Brook. The area is relatively flat and is mapped as glacial outwash. The area appears to have been filled with sand and gravel to a depth of at least 4 feet. Till was found to underlie the fill in most locations. Refusal on the augers was encountered in each boring. The refusal was on probable bedrock and ranged in depth from approximately 8' westerly of the Garage to 11'6" northerly of the Garage. No bedrock outcrops were observed in the immediate vicinity.

Bedrock in the area is mapped as the Mount Holly Formation, consisting of fine to medium grained biotitic gneiss. The rock is noted as being locally schistose.

Site Hydrogeology

The proximity of the West River to the east and Greendale Brook to the west and south is presumed to control the regional direction of groundwater movement. The garage is located approximately 450 feet east and north of Greendale Brook. The flow of Greendale Brook in this area is primarily to the southeast and the flow of the West River is primarily to the southwest. At the time the wells were sampled on August 23, 1994 depth to the water table ranged from 6.1 feet to 7.3 feet. Based on that single observation, the direction of groundwater movement is to the southwest. A site sketch showing water table contours as of that date will be found as Appendix E.

Potential Receptors

The 1986 USGS quadrangle indicates 40± structures within a one-half mile radius of the site. All are assumed to have wells or springs for domestic water supply. The majority are topographically higher or separated from the site by Greendale Brook or the West River. Based on the observed direction of groundwater flow, the nearest potential surface water receptors are Greendale Brook and the Weston Recreation Club pool to the southwest of the Garage. The Garage well is the nearest potentially affected drinking water source. Based on State water well records the well is 260 feet deep, with 1 foot of overburden, and is cased to 21 feet. The nearest potentially affected off-site water supply is located approximately 350 feet to the southwest at the Weston Recreation Club facility. Given the distance to that well and the apparent limited extent of contamination, that well was not sampled. The Garage has a slab on grade foundation. All other buildings in the vicinity are upgradient or separated from the site by significant distances. No potential off site receptors were identified in the immediate vicinity.

Monitoring Well Sampling

The four Dufresne-Henry monitoring wells and the Garage water supply well were sampled on August 23, 1994 following the standard protocols which accompanied our work plan. The sampling was performed by Dufresne-Henry personnel. Three well volumes were purged prior to drawing a sample. No free product was observed in any well. PID readings of 12 ppm, 6 ppm, 10 ppm, and 5 ppm were noted from the top of the well casing upon opening. The refrigerated samples were sent to the Agency of Natural Resources Laboratory on August 23, 1994 via overnight service. The samples were analyzed for VOC's by EPA Method 8240. A copy of the laboratory analytical report is included in Appendix F.

The analyses detected Total Volatile Hydrocarbons above detection limits in MW-2 and MW-3. The estimated concentrations were 1,070 $\mu\text{g/L}$ and 298 $\mu\text{g/L}$ respectively. No BTEX above detection limits was found. No compounds above detection limits for the method used were found in MW-1 and MW-4.

Discussion

The boring and sampling programs for this study indicate that limited contamination of soil and water by diesel fuel has occurred on the site. The findings generally corroborate the findings of the Tank Closure Assessment. Groundwater in the vicinity of the former diesel pump and tank contains low concentrations of Total Volatile Hydrocarbons. BTEX above detection limits for the analytical method used were not found in any well. PID readings of soil samples obtained during the borings were all at concentrations less than State guidelines allow for backfilling. A downgradient monitoring well indicates that impacted groundwater is limited to a small area around the former pump and tank.

The receptor study found the only potential receptor to be the on site well. No compounds above detection limits for the method used were found in that well.

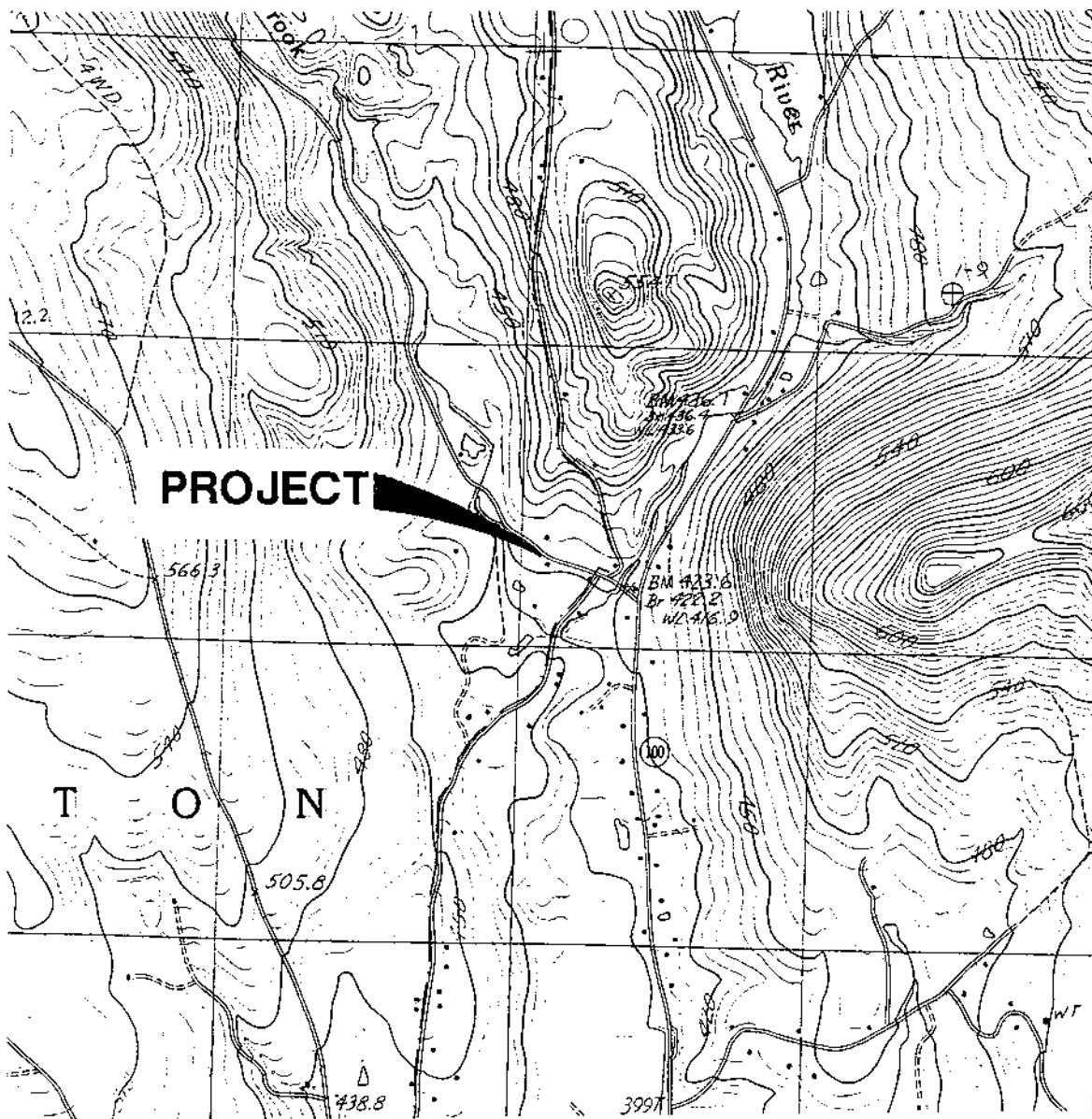
Summary and Recommendations

In summary, four (4) shallow groundwater monitoring wells were installed on the site and sampled. The Garage drinking water supply was also sampled. The conclusions of the Tank Closure Assessment were generally corroborated. All the data collected suggests that the contaminated soil was removed during the Closure Assessment. Results from the boring program and the water quality sampling indicate that groundwater has been negligibly impacted in a very limited area around the former diesel pump and tank. Total Volatile Petroleum Hydrocarbons were detected in monitoring wells MW-2 and MW-3 at concentrations of 1,070 $\mu\text{g/L}$ and 298 $\mu\text{g/L}$ respectively. There are no groundwater standards for Total Volatile Petroleum Hydrocarbons. No BTEX above detection limits was found in any monitoring well. PID readings of soil samples obtained during the borings were below the State guidelines for backfilling.

The only potential on site receptor identified is the Garage water well. No compounds above detection limits for the method used were found in a water sample of that well. The general direction of groundwater flow is to the southwest. The nearest potential off site receptors in that general direction are the Weston Recreation Club pool and well approximately 350 feet away. It is expected that natural biodegradation will preclude any impact of that area. The contaminated soil previously stockpiled on site has been removed and disposed of by asphalt batching.

Based on these findings we recommend one additional round of sampling following spring runoff to confirm the initial round.

APPENDIX A
SITE LOCATION MAP



PLAN
1:24,000

TAKEN FROM A USGS QUAD. SHEET FOR WESTON, VT



Dufford & Henry, Inc.

Precision Park
No. Springfield,
Vermont 05150

Tel. 1802/886-2261

Fax 1802/886-2260

SITE LOCATION MAP
FOR

WESTON TOWN GARAGE

WESTON,

VERMONT

Project No. 414032

Proj. Mgr. B.H.C.

Date 8/94

A

APPENDIX B

**SITE INVESTIGATION REQUEST, WORK PLAN,
SITE HEALTH AND SAFETY PLAN**



State of Vermont

JUL - 8 1994

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street/West Office
Waterbury, Vermont 05671-0404
(802) 241-3888
FAX (802) 244-5141

July 6, 1994

Sheila H. Hebeets
Town of Weston
P.O. Box 98
Weston, VT 05161

RE: Petroleum contamination at Weston Town Garage (Site #94-1622)

Dear Mrs. Hebeets:

The Sites Management Section (SMS) has received the May 27 and June 3, 1994 report outlining the subsurface assessment for the above referenced site, conducted by Bruce H. Cox, P.E. of Dufresne-Henry, Inc. This report summarizes the degree and extent of contamination encountered during the assessment on May 25, 1994.

Two underground storage tanks (USTs) owned by the Town of Weston were removed. During the tank pull, soils screened near the diesel pump dispenser had peak concentrations of 55 ppm as measured by a photoionization detector (PID). A total of twelve cubic yards of petroleum contaminated soil was removed from this area and polyencapsulated onsite. Background concentrations of volatile organic compounds were detected in the tank basins of the two tanks. No sheens were observed on the water table encountered at a depth of approximately five feet below ground surface. Based on the above information, the SMS has determined that additional work is necessary at the site in order to determine the severity of contamination present. Therefore, the SMS is requesting that the Town of Weston retain the services of a qualified environmental consultant to perform the following:

1. Determine the degree and extent of contamination, if any, to groundwater. If soil is found to contain evidence of contamination at the water table, then a sufficient number of monitoring wells should be installed in locations which will adequately define the degree and extent of contamination at the site. All groundwater samples taken should be analyzed for BTEX and MTBE compounds.
2. Perform an assessment of the site to determine the potential for sensitive receptors to be impacted by the contamination. This should include basements of adjacent buildings, nearby surface water, and any public or private drinking water wells which are located within the vicinity of the site. If any water supplies appear at risk from this contamination, they should be sampled and analyzed using EPA 8020.
3. Develop a plan to treat and/or monitor the stockpiled soils. The soils must be located in an area such that they have a low potential to impact nearby receptors. They

must also be properly encapsulated in plastic. If the soils are to be moved offsite, then the SMS or UST Program must grant permission prior to their transport.

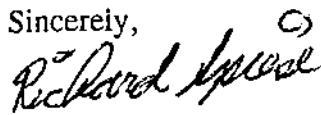
4. Determine the need for a long term treatment and/or monitoring plan which addresses the contamination present at the site. The need for such a plan should be based on the results of the above investigations.

5. Submit to the SMS a summary report which outlines the work performed as well as providing conclusions and recommendations. Included should be detailed well logs, analytical data, a site map, an area map, and a groundwater contour map.

Please have your consultant submit a preliminary work plan and cost estimate within fifteen days of your receipt of this letter so that it may be approved prior to the initiation of onsite work. Enclosed please find a list of consultants who perform this type of work in the area as well as the brochure "Selecting Your UST Cleanup Contractor", which will help you in choosing an environmental consultant. Since this site is a municipally-owned property, the SMS is willing to provide your consultant with assistance, which should reduce the cost to the town for this work. This assistance will include the collection and analysis of all groundwater samples.

The underground storage tanks at the Weston Town Garage are covered by the Petroleum Cleanup Fund as set forth in 10 V.S.A. Section 1941. The owner or permittee must pay for the removal or repair of the failed tank and for the first \$10,000 of the cleanup; after that the fund will reimburse the tank owner or permittee for additional cleanup costs up to \$1 million. Attached please find the document titled "Reimbursement Package for the Petroleum Cleanup Fund" which further explains this program. Additionally, the Secretary of the Agency of Natural Resources reserves the right to seek cost recovery of fund monies spent at the Weston Town Garage site if the Secretary concludes that the Town of Weston was in significant violation of the Vermont Underground Storage Tank statutes (10 V.S.A., Chapter 59). If you have any questions, please feel free to call.

Sincerely,


for Chuck Schwer, Supervisor
Sites Management Section

cc: Bruce H. Cox, P.E., Dufresne-Henry, Inc.
DEC Regional Office

Proposed Work Plan
Initial Site Investigation

WESTON TOWN GARAGE
WESTON, VERMONT

This work plan outlines the boring and monitoring well program for the Initial Site Investigation at the Weston Town Garage in Weston, Vermont. Contaminated soil was discovered at the site during a tank closure assessment. Two underground tanks were removed: one 500 gallon gasoline, one 1,000 gallon diesel. The location of the gasoline tank was clean. Minor evidence of contamination was observed in the diesel tank excavation (PID readings <2 ppm). Oil saturated soil was found at the diesel pump. Soil PID readings of up to 55 ppm were observed from the pump location. Contaminated soil was removed until PID readings of less than 10 ppm were obtained. Approximately 12 cubic yards of soil were polyencapsulated on site. Groundwater was encountered at approximately 62".

The proposed monitoring wells will be used to define the extent of the contamination plume and provide basic hydrogeologic data. It is anticipated that four (4) shallow wells will be installed. A site sketch of approximate proposed boring/well locations will be found attached. All borings and monitoring well installations will be performed by M & W Soils Engineering, Inc. of Charlestown, New Hampshire under the field supervision of Dufresne-Henry personnel. All field personnel are OSHA certified for hazardous site operations under 29 CFR part 1910.120.

BORINGS

It is anticipated that the borings for the monitoring wells will be done using 4 1/4" hollow stem augers. Hollow stem augers offer the advantages of minimal hole caving, ease of geologic sampling, and relatively easy monitoring well installation. They generally are the most cost effective method given the expected subsurface conditions. Monitoring well borings will be taken to a depth of approximately 5' into the prevailing groundwater table or to refusal, whichever occurs first. It is expected that the wells will be 10' - 15' deep. Petroleum based pipe dope for use on drill rods, tools, or casing will not be allowed. No type of drilling mud, including polymers, will be used. Should flowing sands be encountered, clean water obtained locally will be used to increase hydraulic head. If flowing sands are particularly problematic, casing will be used.

SOIL SAMPLING

Soil samples will typically be taken at 5 foot intervals using a split spoon sampler. Sampling at other intervals may occur and will be a field decision of the Dufresne-Henry inspector. Possible reasons include abrupt changes in drill rate and suspected, or known, zones of contamination. The split spoon sampler allows retrieval of relatively undisturbed soil samples from a known depth for classification and Volatile Organic Compound (VOC) screening. All soil samples and material from the auger flights will be screened for VOC's by headspace

analysis with an HNU HW-101 photoionization detector (10.2 eV lamp, calibrated with isobutylene). The act of driving the sampler (Standard Penetration Test) also gives an indication of the density or degree of compaction of the soil. Representative samples from each spoon will be placed in glass jars and retained by Dufresne-Henry. These are for project records only and are not intended for chemical analysis. Detailed logs of geology, drilling data, PID readings, and monitoring well installation will be prepared for each boring. Soil samples for laboratory analysis may be obtained as part of this project. Water quality samples will not be obtained during the boring program.

MONITORING WELLS

Monitoring wells will be constructed from 2", 0.010" machine slotted, threaded, flush joint, Schedule 40 PVC. Assuming no refusal, each monitoring well will consist of 10' of screen with sufficient riser to reach approximately 2" below the surface grade. The bottom of the well will be set such that approximately 5 feet of screen extends above and below the water table observed at the time of installation. For wells with shallow depth to the water table, the screened interval will be a decision of the Dufresne-Henry inspector. The bottom of all wells will be provided with a PVC cap or point or a plug with an expanding gasket. The annular space between the auger and the screen will be carefully backfilled with clean silica sand to create a filter pack around the well. The filter pack will extend from the bottom of the well to approximately 2 feet above the screen. The remainder of the hole will be backfilled with native soil to about 2 feet from the surface. A bentonite seal will be installed and a protective monitoring well box will be grouted in flush at the surface or a stick-up steel casing installed depending on the location. All wells will have removable top caps for sampling and sounding.

DECONTAMINATION

The borings may, or may not, be completed within the zone of contamination. However, to prevent cross contamination between the borings, strict decontamination procedures will be followed. All in-ground tools and equipment will be decontaminated by steam cleaning prior to the start of work and between borings. All decontamination will be done on-site at a designated location. Routine cleaning of equipment, such as split spoons, will use water obtained at the site and a product such as Alconox. Disposal of waste will be at the site. Excess contaminated soil will be disposed of at the existing stockpile on-site.

RECEPTOR STUDY

A field investigation will be performed to identify potential receptors including nearby water supply wells and surface water. The basement of any nearby buildings, if any, will be screened with the PID as deemed necessary.

WATER SAMPLING

Water quality samples will be obtained from all Dufresne-Henry installed monitoring wells following a period of stabilization. A sample will also be

obtained from the tap in the Town Garage and any other nearby drinking water supplies identified during the receptor study. The samples will be taken by Dufresne-Henry personnel. Protocols for the sampling are on an attached document. Samples will not be obtained from any well exhibiting free product. The samples will be analyzed for VOC's (BTEX & MTBE) by EPA Method 8020 by the Vermont Agency of Conservation laboratory.

REPORTING

A letter report summarizing the finding and recommendations of the investigation will be submitted within 30 days of the completion of well installation.

WATER QUALITY SAMPLING TECHNIQUES

Quality Assurance Document

Introduction

Sample collection for groundwater monitoring wells is performed with polyvinyl chloride (PVC) bailers for samples which are analyzed for inorganic parameters, and by Teflon bailers for organic parameters. Surface water samples are hand grab samples. All samples are collected in suitable containers and refrigerated and/or field preserved as appropriate until delivered to a certified laboratory for analysis. Samples are delivered to the laboratory as soon as possible and in all circumstances within the recommended delivery time for specific parameters. A Chain of Custody record is kept for each sample location and sampling occurrence.

Monitoring Wells

The casing and well guard are inspected for signs of vandalism or damage. The condition of the ground surface at the well head is examined for signs of surface water infiltration. Information regarding condition is noted as well as information regarding identification of the lock and key. Well casing diameter is noted. Weather conditions are noted as well as any recent rainfall or drought conditions.

Upgradient wells ("clean") are sampled prior to downgradient wells. Static water level is determined using an electronic water sounder or a tape and weight with an accuracy of ± 0.01 foot. Measurements are recorded to the nearest 0.02 foot from the top of the protective steel casing or monitoring well casing. The PVC bailer is washed with a non-ionic phosphate free detergent and rinsed with distilled water. The depth to the bottom of the well is determined and the volume of water required for purging is calculated. A minimum of three volumes of static water in the well is purged. The purged water is discarded. Teflon bailers are used for sample collection. The Teflon bailers are washed with detergent and rinsed with distilled water between sampling locations.

The color, odor, and turbidity of the sample is noted. Samples are obtained for parameters required for the specific well. An example of the parameters typically obtained immediately after the well has been flushed are: chemical oxygen demand (COD), chloride, and site specific metals. Samples may also be obtained for nitrates, calcium, manganese, sulfates, total organic compounds, total halogenated organic compounds, and volatile organic compounds. If volatile organic analysis (VOA) is required, these samples are obtained first. The VOA sample is slowly released into a clean VOA vial with as little disturbance to the sample as possible. The vial cap is retained in the hand during the process with the Teflon seal protected from all contamination. No free gases are permitted in the sample.

All samples which will be analyzed for dissolved metals and COD are field filtered using a pressurized 0.45u filter. Samples are placed in containers provided by the certified laboratory and labeled with an identification number, date, and method of preservation.

Surface Water Sampling

Hand grab samples are collected at surface water sampling locations. Samples are obtained from mid-depth of the water column in a field cleaned sampling device. Samples which will be analyzed for dissolved metals, COD, and which have observable turbidity are filtered with a 0.045u filter and immediately preserved. Field parameters of temperature, pH, and specific conductance are also measured in the water column. Conditions in the vicinity of the sampling location are noted, depth of sample below water surface, and general flow conditions.

Sample Preservation and Handling

Samples collected which require fixing with preservative chemicals are placed in sample containers with the appropriate reagent. The samples are placed in insulated chests with ice packs or ice. Samples are kept refrigerated until they are delivered to the laboratory no later than allowable according to the holding times determined by Standard Methods. Sampling personnel contact the laboratory personnel regarding sampling delivery and analysis.

Record Keeping

Field data sheets are utilized to reconstruct sampling conditions at any time after sampling. These sheets shall contain all information regarding the site: name, date, time of sampling, weather, ambient air temperature, identification numbers, and sampler's name. Field data is to include information regarding the condition of the well head and casing, well specifics (total depth, static water level, diameter, length of casing above grade, volume of water purged), sampling date (equipment used, depth sample obtained, physical properties of sample), field measurements of pH, conductivity, temperature, and the number and type of sample containers.

Chain of custody record for all samples shall be maintained. A sample shall be considered to be in the custody of an individual if it is in the direct view of, or otherwise controlled by, the individual in custody. Storage of samples during custody shall be accomplished according to established preservation techniques in appropriately sealed and numbered storage containers. Chain of custody shall be maintained during the exchange of the samples or sealed sample container directly transferred from one individual to the next with the former custodian witnessing the signature of the recipient on the chain of custody record. Chain of custody forms shall contain the following information: sample location names, field identification numbers, signature of collector, date and time of collection, number of containers transferred, parameters for analysis, all signatures of individuals involved in the chain of possession, description of sample condition, and any comments regarding sample collection.

Quality Assurance and Control

To check the integrity of field sampling and equipment cleaning techniques, the following field control procedures are used. Field blanks, and occasionally trip blanks, are used as control or external QA/QC samples to detect contamination that may be introduced in the field (atmospheric or from sampling

equipment), in transit to or from the sampling site, during bottle preparation, and sample log-in or storage.

A "field blank" is collected after sampling a well that previously indicated high concentrations of the water quality parameters analyzed. The sampling equipment is cleansed and a sample of distilled water is obtained using the sampling equipment. The distilled water sample is then used to prepare the field blank.

A sample replicate is used periodically to provide quality assurance for the laboratory analysis techniques. A sample is split in the field and provided to the laboratory in two or more sampling containers.

Decontamination of Field Equipment

All field equipment is rinsed with de-ionized or distilled water. This includes the electronic water sounder probe, the bailer winch spool, Teflon coated bailer wire, filter unit, and bailers. In addition, the bailers are disassembled, washed with a non-phosphate detergent, and rinsed with pressurized distilled water.

Site Health and Safety

All sampling personnel shall receive an annual medical examination to determine the baseline physiological condition. Appropriate blood chemistry work and x-rays are taken as required.

Protective clothing is worn by all site technicians during sampling. This clothing includes protective rubberized overalls, rubber gloves, and steel-toed boots. Full-face respirators with organic filter cartridges, combustible gas and oxygen detection meters, and photoionization detectors are available for the sampler's protection.

Upon arrival at the site a visual survey is performed to determine the safety of the work place. No water quality testing is performed if there is any evidence of hazardous waste disposal or the uncovering of suspected hazardous materials. Upon arrival at a monitoring well location, the cap is removed from an upwind position. The well head is allowed to vent for at least five minutes while sampling equipment is set up. No smoking or use of flammable materials is permitted adjacent to a well head.

Data Transaction, Reduction and Report Generation

Data analysis and interpretation are the responsibility of the Project Manager or Project Team member responsible for a particular task of the project. The data are compiled in table form for ease of presentation to highlight the significant information. The data may be input into the computer and plotted on various types of graphs and maps, or analyzed by various statistical methods.

Sampling Protocol Addendum for: Town Garage
Weston, Vermont

1. The person(s) sampling the wells will utilize an HNU photoionization detector. Immediately upon removal of the well cap, the HNU will be used to make a preliminary determination as to the VOC activity in the well.
2. A bailer will then be lowered into the well to check for the presence of free product floating on the groundwater surface. If free product is found, the well will be purged until product ceases to be observed. Product will be stored in a container that will remain on-site. The well will be allowed to recover and be repurged and checked for free product. If free product is again observed, no water quality samples will be taken. If free product is not observed, the well will be sounded, purged, and sampled as outlined above.
3. Water samples will be forwarded to the Vermont Agency of Natural Resources laboratory for analysis. Analysis will be for Volatile Organic Compounds including "BTEX" and MTBE by EPA Method 8020.

PROJECT: WESTON TOWN GARAGE; INITIAL SITE INVESTIGATION
JOB NO.: 414032

Background Information

Site Status: x Active Inactive Unknown

Site Description:

The Weston Town Garage is located on Greendale Road in Weston, VT. The 3+ acre site consists of a 4 bay garage, separate salt shed, equipment storage areas and soil stockpiles. The property has an on-site septic system and a drilled rock well. Other on-site utilities include overhead power lines and a stormwater culvert. A new diesel UST has been installed northwest of the northwestern corner of the garage. The site is generally graded to the south. Greendale Brook is within 450'+ of the site to the southwest.

The area of known contamination is at the former diesel pump at the northwest corner of the garage. Minor evidence of contamination was observed at the location of the former diesel tank to the west of the pump.

Site History:

The complete site history is not known. The Town Garage has been in this location since at least the 1960's when the gasoline tank was installed. The diesel tank was installed in about 1981.

Field Monitoring or Sampling Data From Previous Site work:

A tank closure assessment was conducted by Dufresne-Henry on May 25 and June 2, 1994. Two (2) UST's were excavated; (1) 500 gallon gasoline and (1) 1,000 gallon diesel. The site of the gasoline tank was clean. Minor evidence of contamination was observed in the excavation for the diesel tank. Oil saturated soil was discovered under the diesel pump. PID readings up to 55 ppm were observed. Approximately 12 cubic yards of contaminated soil was excavated and polyencapsulated on-site.

No other environmental investigation work is known to exist on this site.

PROJECT: WESTON TOWN GARAGE; INITIAL SITE INVESTIGATION
JOB NO.: 414032

HEALTH AND SAFETY PLAN
FOR
INITIAL SITE INVESTIGATION
WESTON TOWN GARAGE
WESTON, VERMONT

This Health and Safety Plan applies only to Dufresne-Henry, Inc. employees.

PROPOSED ON-SITE ACTIVITIES:

Installation and sampling of four (4) shallow groundwater monitoring wells, sampling of the domestic water supply, and decontamination.

PROPOSED DATE(S) OF WORK: August 16, 1994

ANTICIPATED WEATHER CONDITIONS: temperatures in the 50's - 80's, possible rain, light wind.

PROPOSED SITE INVESTIGATION TEAM:

Personnel	Responsibilities
Bruce Cox	Project Manager
Bruce Cox	Site Safety Officer
Bruce Cox/Oscar Garcia	Field Team Leader (Borings/Sampling)
Donald Hart, Board of Selectmen	Site Representative
Chuck Schwer	ANR Representative

All Dufresne-Henry, Inc. personnel arriving or departing the Site should check in and out with the Site Safety Officer. All Dufresne-Henry activities on-Site must be cleared through the Field Team Leader or Project Manager.

PROJECT: WESTON TOWN GARAGE; INITIAL SITE INVESTIGATION
JOB NO.: 414032

Hazard Assessment:

OVERALL HAZARD: Serious Moderate X Low
 Unknown

On-Site Control

Site control is necessary to minimize potential exposure of workers to hazardous waste/materials, protect the public from the Site's chemical and physical hazards, and to facilitate work activity. The procedures to be followed involve the establishment of Site work zones, Site security, and safe work practices.

The on-Site staging area and support zone has been established at:

The driveway north of the garage.

The personal contamination reduction zone (decon area) has been established at:

The area of the removed diesel UST.

During the intrusive work, the exclusion area will be defined as follows:

The drill rig and 15 foot radius around the borehole.

The decontamination of sampling and/or heavy equipment will be conducted:

The area of the removed diesel UST.

These sub-regions of on-Site control have been established in order to reduce the potential cross contamination and proliferation of contamination by potentially contaminated equipment and personal protective equipment.

PROJECT: WESTON TOWN GARAGE; INITIAL SITE INVESTIGATION
JOB NO.: 414032

SITE ACTIVITIES

Required Personal Protective Equipment (PPE)

<u>Task</u>	<u>Entry Level of Protection</u>	<u>Monitoring Equipment</u>	<u>Upgrade/Downgrade Contingency</u>
Well Install.	D	HNU PI-101 Explosimeter O2 meter H2S meter	Upgrade to Level C with HNU readings over 10 ppm for 5 minutes in breathing space.
Decon.	D	"	"
Sampling	D	"	"

Note: Breathing space HNU readings of 50 ppm, explosimeter readings over 25% of the LEL, O2 deficiency or enrichment, or H2S readings will result in shutting down the job and consulting with State officials and the client.

PROJECT: WESTON TOWN GARAGE; INITIAL SITE INVESTIGATION
JOB NO.: 414032

Specific protective equipment for each level of protection is as follows:

Level C: Full Face Respirator w/appropriate cartridge (Willson T45)
Chemically Resistant Suit (Tyvek)
Outer Rubber Slush Boots
Outer Chemically Resistant Gloves
Surgical Gloves
Hard Hat
Steel Toe/Shank Work Boots

Modified Level D: Chemically Resistant Suit (Tyvek)
Outer Rubber Slush Boots
Outer Chemically Resistant Gloves
Surgical Gloves
Hard Hat
Steel Toe/Shank Work Boots
Safety Glasses or Face Shield

Level D: Work Clothes
Steel Toe/Shank Work Boots
Surgical Gloves
Hard Hat

Rationale for change in level of protection:

Upgrade to Level C with HNU readings of 10 ppm or more for 5 minutes in the breathing space.
HNU readings of over 50 ppm in the breathing space, explosimeter readings of over 25% of the LEL, O2 deficiency or enrichment, or H2S readings will result in shutting down the job and consulting with State officials and the client.

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER OR DESIGNEE.

Monitoring Procedures

Site Monitoring Equipment:

<u>X</u>	HNU (Model PI-101, 10.2 eV probe)
<u>X</u>	Explosimeter
<u>X</u>	Draeger Tube & Pump
<u>X</u>	O2 Meter
<u>X</u>	Other: H2S meter

Methods and Frequency of Monitoring:

Air space and soil samples will be monitored with an HNU PI-101.
Air space will be monitored with an explosimeter/O2 meter/H2S meter.
Frequency: Soil samples; as obtained.
Air; not to exceed every 15 minutes.

PROJECT: WESTON TOWN GARAGE; INITIAL SITE INVESTIGATION
JOB NO.: 414032

SITE OPERATING PROCEDURES/SAFETY GUIDELINES

- ** Always observe the buddy system. Never enter or exit site alone, and never work alone in an isolated area. Never wander off by yourself.
- ** Always maintain a line-of-sight.
- ** Practice contamination avoidance. Never sit down or kneel, never lay equipment on the ground, avoid obvious sources of contamination such as puddles, and avoid unnecessary contact with on-site objects
- ** No eating, drinking, or smoking outside the designated "clean" zone.
- ** In the event PPE is ripped or torn, work shall stop and PPE shall be removed and replaced as soon as possible.
- ** Be alert to any unusual changes in your own condition; never ignore warning signs. Notify Health and Safety Coordinator as to suspected exposures or accidents.
- ** A vehicle will be readily available exclusively for emergency use. All personnel going on-site shall be familiar with the most direct route to the nearest hospital.
- ** In the event of direct skin contact, the affected area shall be washed immediately with soap and water.
- ** Copies of the Health and Safety Plan shall be readily accessible at the command post.
- ** Note wind direction. Personnel shall remain upwind whenever possible during on-site activities.
- ** Never climb over or under refuse or obstacles. Use safety harness/safety lines when sampling lagoons, stream beds, and ravines with steep banks.
- ** Hands and face must be thoroughly washed before eating, drinking, etc.
- ** Any modifications to this safety plan MUST be approved by the Site Safety Officer.

PROJECT: WESTON TOWN GARAGE; INITIAL SITE INVESTIGATION
JOB NO.: 414032

Special Procedures:
Confined Space Entry

☒ No attempt will be made to enter abandoned buildings, manholes, tanks, or any other confined areas.

☐ Other:

Personnel Monitoring: (If applicable: Heat stress, frostbite, air sampling of individual breathing zone)

Monitoring of individual breathing space will be monitored by an HNU PI-101, explosimeter, O2 meter, and H2S meter as outlined in monitoring procedures. Monitoring of weather related hazards will be dictated by existing conditions.

EMERGENCY SITUATIONS

The following standard emergency procedures will be used by Dufresne-Henry on-site personnel. The Site Safety Officer (SSO) shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury to Dufresne-Henry Employees in the Exclusion Zone

Upon notification of an injury to a Dufresne-Henry employee in the exclusion zone, a rescue team will enter the zone (if required) to remove the injured person to the hotline. The SSO and Project Manager should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement to the support zone. The SSO shall arrange for appropriate first aid, and contact should be made for an ambulance and with the designated medical facility (if required). No Dufresne-Henry personnel shall re-enter the exclusion zone until the cause of the injury or symptoms are determined.

Personnel Injury to Dufresne-Henry Employees in the Support Zone

Upon notification of an injury to a Dufresne-Henry employee in the support zone, the Project Manager and SSO will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operations may continue, with the on-site Field Team Leader initiating the appropriate first aid and necessary follow-up as stated above. If the injury increases the risk to others, all Dufresne-Henry personnel shall move to the decon line for further instructions. Dufresne-Henry activities on-site will cease until the added risk is removed or minimized.

Fire/Explosion

Upon notification of a fire or explosion on-site, all Dufresne-Henry personnel will assemble at the decon line. The fire department shall be alerted and all Dufresne-Henry personnel moved to a safe distance from the involved area.

Personal Protective Equipment Failure

If any Dufresne-Henry site personnel experience a failure or alteration of protective equipment that effects the protection factor, that person and his/her buddy shall immediately leave the exclusion zone. Re-entry shall not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure

If any other equipment on-site fails to operate properly, the Project Manager and SSO shall be notified and then determine the effect of this failure on continuing operations on-site. If the failure affects the safety of on-site Dufresne-Henry personnel or prevents the completion of the tasks, all Dufresne-Henry personnel shall leave the exclusion zone until the situation is evaluated and appropriate actions taken.

In all situations, when an on-site emergency results in evacuation of the exclusion zone, Dufresne-Henry personnel shall not re-enter until:

1. The conditions resulting in the emergency have been corrected.
2. The hazards have been reassessed.
3. The Site Safety Plan has been reviewed.
4. Dufresne-Henry personnel have been briefed on any changes in the Site Safety Plan.

PROJECT: WESTON TOWN GARAGE; INITIAL SITE INVESTIGATION
JOB NO.: 414032

EMERGENCY INFORMATION

AMBULANCE: Weston, VT Phone: (802) 824 - 3166

HOSPITAL: Springfield Hospital Phone: (802) 885 - 2151
Ridgewood Road
Springfield, VT
(see attached map)

POLICE: Weston, VT Phone: (802) 824 - 3915

FIRE DEPARTMENT: Weston, VT Phone: (802) 824 - 3166

POISON CENTER: Burlington, VT Phone: (802) 658 - 3456

ANR INCIDENT RESPONSE: Office Phone: (802) 241 - 3888

CORPORATE:

Dufresne-Henry N. Springfield, VT Phone: (802) 886-2261

Project Manager: Bruce Cox

NEAREST PHONE: Town Garage

LOCATION OF ON-SITE FIRST AID KIT: Boring contractors vehicle.

EMERGENCY VEHICLE: The designated emergency vehicle on-site shall be that of the Dufresne-Henry, Inc. representative.

PROJECT: WESTON TOWN GARAGE; INITIAL SITE INVESTIGATION
JOB NO.: 414032

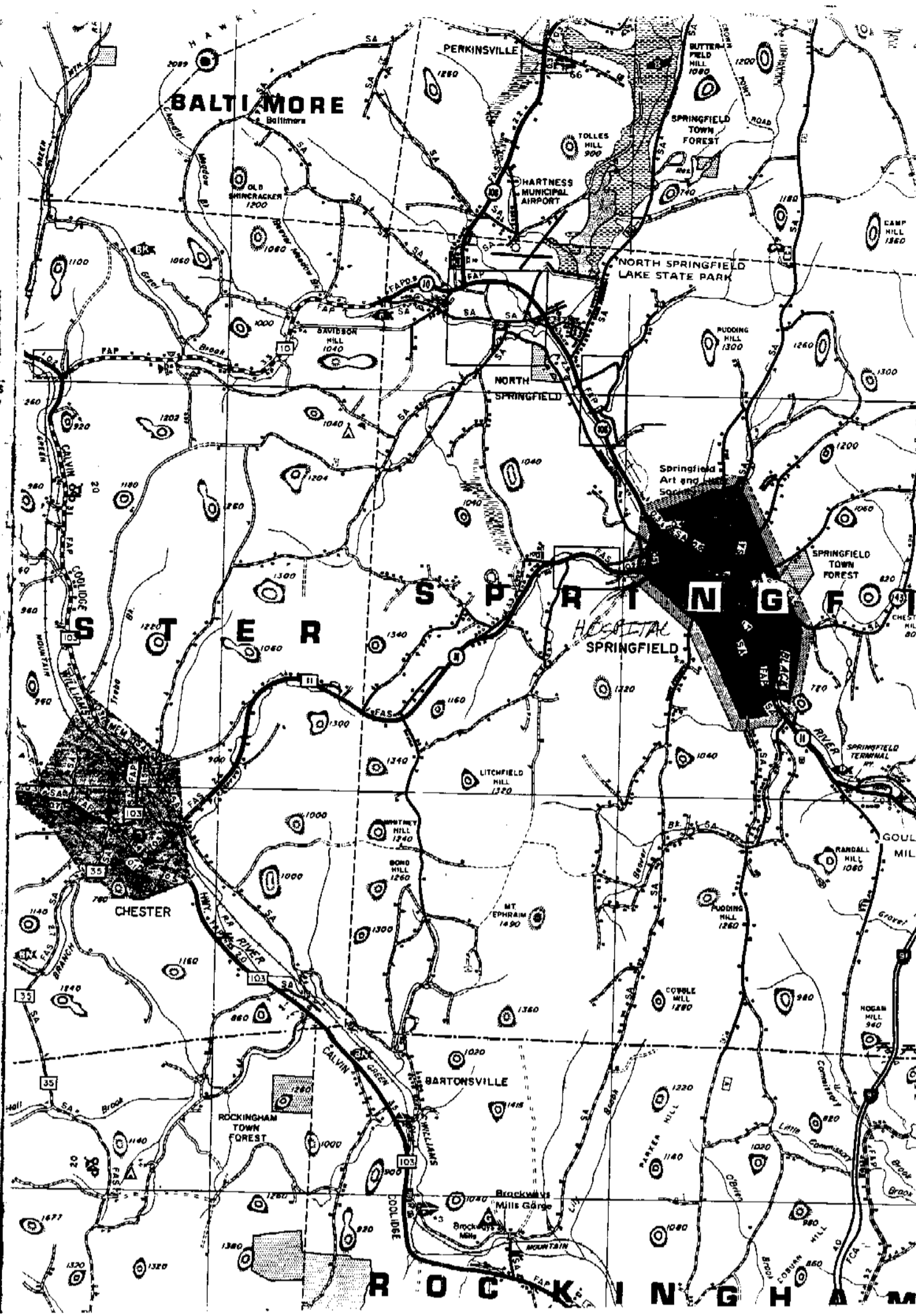
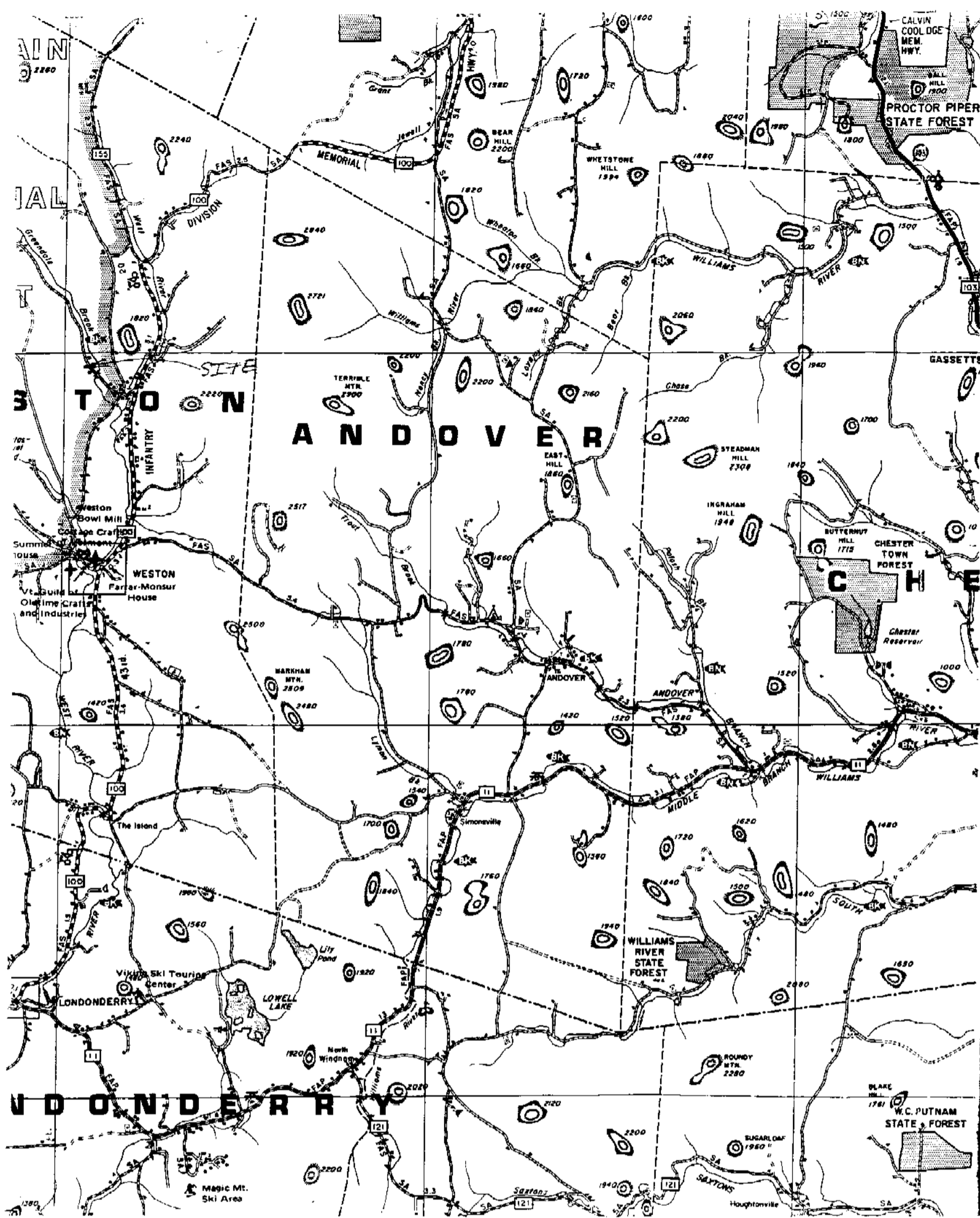
The following individuals have read this safety document and are familiar with its contents, site conditions, and on-site safety procedures (please sign below):

	<u>Company</u>
<u>Bruce Cox</u>	<u>Dufresne-Henry, Inc.</u>
<u>Oscar Garcia</u>	<u>Dufresne-Henry, Inc.</u>
<u>Myron Domingue</u>	<u>M & W Soils Engineering, Inc.</u>
<u>Richard Holmes</u>	<u>M & W Soils Engineering, Inc.</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Copies of this SSP have been given to:

Approval Signatures:

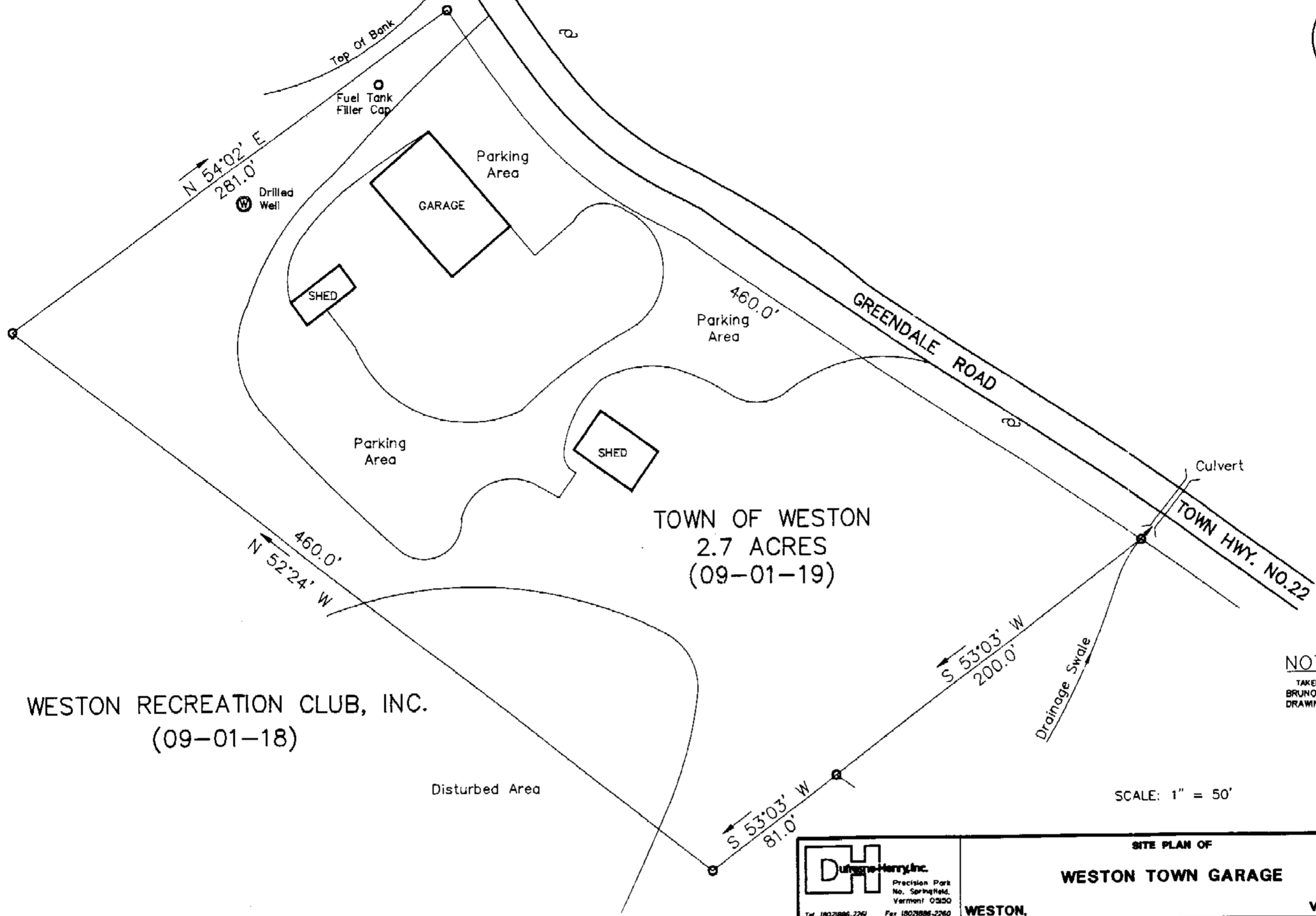
PM _____
Div. Dir. _____



APPENDIX C

SITE PLAN

WESTON RECREATION CLUB, INC.
(09-01-18)

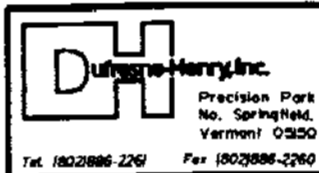


TOWN OF WESTON
2.7 ACRES
(09-01-19)

WESTON RECREATION CLUB, INC.
(09-01-18)

NOTE:
TAKEN FROM A PLAN PREPARED BY:
BRUNO ASSOCIATES INC. DATED 5/25/94
DRAWING #TWNGAR, SCALE 1"=50'

SCALE: 1" = 50'



SITE PLAN OF		Project No. 414032
WESTON TOWN GARAGE		Proj. Mgr. B.H.C.
WESTON, VERMONT		Date SEPT. '94
		B

APPENDIX D

BORING LOGS
AND
MONITORING WELL INSTALLATION REPORT

BORING LOCATION	MW-1	INCLINATION	V	BEARING		DATE START/FINISH	8/16/94	/	8/18/94
CASING ID		CORE SIZE		TOTAL DEPTH	11.5 FT	DRILLED BY:	M & W SOILS ENGINEERING (R.H./M.D.)		
GROUND EL (AD)	1000.22	DEPTH TO WATER/DATE	7.00 FT/	8/23/94		LOGGED BY:	B. COX		

ELEV AD FT	SAMPLE			SAMP OD IN	LENGTH		REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
	DEPTH FT	TYPE AND NO.	B		REC IN	PENETRA- TION IN			
995.22	5						4" SSA	4 1/2"/FB	0' - 2' Medium brown sandy GRAVEL. 2' - 5' Light brown silty SAND.
993.22	7	SS-1	26 23 24 37*	2	24	24	* cobble		Light - medium gray and brown, dense - very dense, silty, gravelly SAND. Very fine - rarely medium grained, moderately well sorted sand. 20% - 30% non plastic fines. 2" silt layer at 6'3". 20%± fine gravel to 1". Dry. No odor or staining. 2.2 ppm.
989.22	11						4 1/4" HSA	8"/CCH	Probable sandy GRAVEL with cobbles and boulders.
988.97	11.25	SS-2	100*	2	3	3	* 100/3"		Medium gray very silty TILL with very weathered schist at bottom. Wet. No odor or staining. 4.6 ppm.
									Refusal on HSA at 11'6" on probable bedrock. Set 7' of 2" dia, .010" slot, threaded, flush joint, Schd 40 PVC at 11'1". Sand backfill to 2'. Bentonite seal 1' - 2'. Grouted in flush 6" aluminum monitoring well box.

<p>B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.</p> <p>REC - Length of sample recovered.</p> <p>SS - Split spoon sample.</p> <p>U - Undisturbed samples</p> <p>S - Shelby tube N - Denison</p> <p>F - Fixed piston P - Pitcher</p> <p>O - Osterberg</p> <p>SAMP OD - Outside diameter of sampling spoon</p>	<p>NOTES</p> <p>SSA = Solid Stem Auger</p> <p>HSA = Hollow Stem Auger</p> <p>FB = Finger Bit</p> <p>CCH = Conical Cutter Head</p> <p>ppm Refers to PID reading (HNU w/10.2 eV lamp)</p> <p>Top of PVC elev = 999.90</p>
--	---

Top of PVC elev = 999.90

LOG OF BORING: MW-1

BORING LOCATION MW-2 INCLINATION V BEARING DATE START/FINISH 8/18/94 / 8/18/94
 CASING ID CORE SIZE TOTAL DEPTH 8 FT DRILLED BY: M & W SOILS ENGINEERING, INC. (M.D.)
 GROUND EL (AD) 999.65 DEPTH TO WATER/DATE 6.70 FT/ 8/23/94 LOGGED BY: B. COX

ELEV AD FT	SAMPLE			SAMP OD IN	LENGTH		REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
	DEPTH FT	TYPE AND NO.	B		REC IN	PENETRA- TION IN			
997.65	2	SS-1	23 12 9	2	12	24			0" - 2" Bituminous concrete pavement. 2" - 2' Medium - dark brown, medium dense - dense silty, gravelly SAND. Very fine medium grained, moderately poorly sorted sand. 20%+ non plastic fines. 20% - 30% fine gravel 1/8" - 1". Moist. No odor or staining. 2.4 ppm.
995.65	4	SS-2	4 5 4 9	2	12	24			Medium - dark brown, loose - medium dense, gravelly SAND. Predominately very fine - fine grained, well sorted sand. 30%+ non plastic fines. 10% - 20% fine gravel. Trace miscellaneous fill. Old ground surface at 3'9". Damp. No odor or staining. .3 ppm.
993.65	6	SS-3	17 6 18 30	2	11	24			Medium brown, medium dense - dense, silty TILL. Predominately very fine - fine grained (occasionally medium grained), well sorted sand. 30% - 40% non plastic fines. Cobble at bottom. Damp to wet at bottom. No odor or staining. .1 ppm.
992.65	7	SS-4	46 62	2	12	12			6' - 6'6" Medium - dark brown, very dense, gravelly SAND. Fine - medium grained, moderately well sorted sand. 10% - 20% non plastic fines. 30%+ fine gravel. Wet. No odor or staining. .1 ppm. 6'6" - 7' Light - medium brown, very dense, silty gravelly SAND. Fine - occasionally coarse grained poorly sorted sand. 20%+ non plastic fines. 20%+ fine gravel. Dry. No odor or staining. .1 ppm.
991.48	8.17						4 1/4" HSA	8"/CCH	Probable gravelly SAND as above or TILL.
									Refusal on HSA at 8'2" on probable bedrock. Set 5' of 2" dia, .010" slot, threaded, flush joint, Schd 40 PVC at 8'2". Sand backfill to 2' Bentonite seal 1' - 2'. Grouted in flush 6" aluminum monitoring well box.

B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.
 REC - Length of sample recovered.
 SS - Split spoon sample.
 U - Undisturbed samples
 S - Shelby tube N - Denison
 F - Fixed piston P - Pitcher
 O - Osterberg
 SAMP OD - Outside diameter of sampling spoon

NOTES

HSA = Hollow Stem Auger
 CCH = Conical Cutter Head
 ppm Refers to PID reading (HNU w/10.2 eV lamp)

Top of PVC elev = 999.34

WESTON TOWN GARAGE INITIAL SITE INVESTIGATION

WESTON, VERMONT

DATE: 8/18/94 PROJECT: 414032

PAGE 1 OF 1

LOG OF BORING: MW-2

BORING LOCATION MW-3 INCLINATION V BEARING DATE START/FINISH 8/18/94 / 8/18/94
 CASING ID CORE SIZE TOTAL DEPTH 8.4 FT DRILLED BY: M & W SOILS ENGINEERING, INC. (M.D.)
 GROUND EL (AD) 999.72 DEPTH TO WATER/DATE 6.70 FT/ 8/23/94 LOGGED BY: B. COX

ELEV AD FT	SAMPLE			SAMP OD IN	LENGTH		REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
	DEPTH FT	TYPE AND NO.	8		REC IN	PENETRA- TION IN			
993.72	6						4" SSA	4 1/2"/FB	0" - 3"± Medium - dark brown, silty, sandy ORGAN- IC SOIL. 3" - 6" Light - medium brown, silty, gravelly SAND. Occasional cobbles or boulders. Moist.
992.72	7	SS-1	36 52	2	12	24			6" - 6'6" Light - medium gray, very dense, silty, sandy GRAVEL. Very fine - medium grained, moder- ately well sorted sand. 20% - 30% non plastic fines. Gravel to 1"±. Dry. No odor or staining. .2 ppm. 6'6" - 7' Medium brown, very dense, silty, sandy GRAVEL as above. Dry. No odor or staining. .2 ppm.
991.32	8.4						4 1/4" HSA	8"/CCH	Probable sandy GRAVEL similar to above with cobbles and boulders.
									Refusal on HSA at 8.4' on probable bedrock. Set 5' of 2" dia, .010" slot, threaded, flush joint, Schd 40 PVC at 8'1". Sand backfill to 2'6". Bentonite seal 1'6" - 2'6". Grouted in flush aluminum monitoring well box.

B - Penetration resistance, Blows/6" of a 140
lb hammer falling 30 in to drive a split
spoon sampler.
 REC - Length of sample recovered.
 SS - Split spoon sample.
 U - Undisturbed samples
 S - Shelby tube N - Denison
 F - Fixed piston P - Pitcher
 O - Osterberg
 SAMP OD - Outside diameter of sampling spoon

NOTES

SSA = Solid Stem Auger
 HSA = Hollow Stem Auger
 FB = Finger Bit
 CCH = Conical Cutter Head
 ppm Refers to PID reading
 (HNU w/10.2 eV lamp)

Top of PVC elev = 999.48

WESTON TOWN GARAGE INITIAL SITE INVESTIGATION

WESTON, VERMONT

DATE: 8/18/94 PROJECT: 414032

PAGE 1 OF 1

LOG OF BORING: MW-3

BORING LOCATION MW-4		INCLINATION V		BEARING		DATE START/FINISH 8/19/94 / 8/19/94	
CASING ID		CORE SIZE		TOTAL DEPTH 8 FT		DRILLED BY: N & W SOILS ENGINEERING, INC. (M.D.)	
GROUND EL (AD) 998.46		DEPTH TO WATER/DATE 5.85 FT/ 8/23/94		LOGGED BY: B. COX			

ELEV AD FT	SAMPLE			SAMP OD IN	LENGTH		REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
	DEPTH FT	TYPE AND NO.	B		REC IN	PENETRA- TION IN			
992.96	5.5						4" SSA	4 1/2"/FB	Medium - dark brown, silty, gravelly SAND. Cobbles at 5'.
992.29	6.2	SS-1	35 37*	2	6	8	* 37/2"		Light brown, dense - very dense, silty, sandy GRAVEL. Very fine - fine grained, well sorted sand. 20% - 30% non plastic fines. 50%+ fine gravel 1/4" - 2". Dry - wet bottom 1". No odor or staining. 1.8 ppm.
990.46	8						4 1/4" HSA	8"/CCH	Probable GRAVEL as above or TILL. Cobbles and boulders.
									<p>Refusal on HSA at 8' on probable bedrock.</p> <p>Set 5' of 2" dia, .010" slot, threaded, flush joint, Schd 40 PVC at 7'9". Sand backfill to 21". Bentonite seal 12" - 21". Grouted in flush aluminum monitoring well box.</p>

<p>B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.</p> <p>REC - Length of sample recovered.</p> <p>SS - Split spoon sample.</p> <p>U - Undisturbed samples</p> <p style="margin-left: 20px;">S - Shelby tube N - Denison</p> <p style="margin-left: 20px;">F - Fixed piston P - Pitcher</p> <p style="margin-left: 20px;">O - Osterberg</p> <p>SAMP OD - Outside diameter of sampling spoon</p>	<p>NOTES</p> <p>SSA = Solid Stem Auger</p> <p>HSA = Hollow Stem Auger</p> <p>FB = Finger Bit</p> <p>CCH = Conical Cutter Head</p> <p>ppm Refers to PID reading (HNU w/10.2 eV lamp)</p> <p>Top of PVC elev = 998.19</p>	<p>WESTON TOWN GARAGE INITIAL SITE INVESTIGATION</p> <p>WESTON, VERMONT</p> <p>DATE: 8/19/94 PROJECT: 414032</p>
		<p>PAGE 1 OF 1 LOG OF BORING: MW-4</p>

DH DUFRESNE-HENRY, INC.

BORING LOCATION P-1		INCLINATION V		BEARING		DATE START/FINISH 8/19/94 / 8/19/94	
CASING ID		CORE SIZE		TOTAL DEPTH 9.33 FT		DRILLED BY: M & W SOILS ENGINEERING, INC. (M.D.)	
GROUND EL (AD)		DEPTH TO WATER/DATE 9±		FT/ IMMED.		LOGGED BY: B. COX	

ELEV AD FT	SAMPLE			SAMP OD IN	LENGTH		REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
	DEPTH FT	TYPE AND NO.	B		REC IN	PENETRA- TION IN			
	9						4" SSA	4 1/2"/FB	Medium - dark brown, silty, gravelly SAND. Un- usual organic odor below 5'±. 4 ppm.
	9.33		32*				* 32/4"		Medium brown gray, silty, gravelly SAND. Saturat- ed. Unusual organic odor as above. 3.4 ppm.
									Refusal on spoon at 9'4".

<p>B - Penetration resistance, 8blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.</p> <p>REC - Length of sample recovered.</p> <p>SS - Split spoon sample.</p> <p>U - Undisturbed samples</p> <p style="margin-left: 20px;">S - Shelby tube N - Denison</p> <p style="margin-left: 20px;">F - Fixed piston P - Pitcher</p> <p style="margin-left: 20px;">O - Osterberg</p> <p>SAMP OD - Outside diameter of sampling spoon</p>	<p>NOTES</p> <p>SSA = Solid Stem Auger</p> <p>FB = Finger Bit</p> <p>ppm Refers to PID reading (HNU w/10.2 eV lamp)</p>	<p style="text-align: center;">WESTON TOWN GARAGE INITIAL SITE INVESTIGATION</p> <p>WESTON, VERMONT</p> <p>DATE: 8/19/94 PROJECT: 414032</p> <p>PAGE 1 OF 1 LOG OF BORING: P-1</p>
--	---	--

DH DUFRESNE-HENRY, INC.

M & W Soils Engineering, Inc.

Main St.

Charlestown, NH 03603

TO DUFRESNE-HENRY ENGINEERING
PROJECT NAME WESTON TOWN GARAGE
REPORT SENT TO BRUCE COX
SAMPLE SENT TO RETAINED BY DUFRESNE-HENRY

ADDRESS NORTH SPRINGFIELD, VT
LOCATION WESTON, VT
PROJ. NO.
OUR JOB NO. 6120-94

SHEET 1 OF 1
DATE 8/16/94
HOLE NO. MW-1
LINE & STA.
OFFSET

GROUND WATER OBSERVATIONS
AT 9'5" AT 48 HOURS
AT AT HOURS

Type HSA SS
Size I. D. 4 1/4" 1 1/2"
Hammer Wt. 140# BIT
Hammer Fall 30"

SURFACE ELEV.
DATE STARTED 8/16/94
DATE COMPL. 8/18/94
BORING FORMAN M.D. & R.H.
INSPECTOR B. COX
SOILS ENGR.

LOCATION OF BORING

Depth	CASING BLOWS PER FOOT	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler			MOISTURE DENSITY OF CONSTANT	STRATA CHANGE ELEV.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect	SAMPLE		
				From	To					NO.	PEN	REC
5'							DRY	2'6"	BROWN SAND AND GRAVEL WITH COBBLES (FILL)			
									VERY DENSE BROWN GRAVELLY SAND AND SILT WITH COBBLES AND BOULDERS	1	24"	24"
		6' - 7'	SS	26	23							
				24	37							
10'							WET	8' +/-				
		11' - 11'3"	SS	100/4"				11'4"	VERY DENSE GREYISH BROWN GRAVELLY SANDY SILT WITH COBBLES AND BOULDERS (TILL) REFUSAL TO AUGERS	2	4"	4"
15'									INSTALLED 2" PVC WELL AT 10'11" SLOTTED FROM 3'11"-10'11" WITH 0.010" SLOT SCREEN FILTER SAND TO 2' BENTONITE FROM 1'-2'			
									MATERIALS USED: 7' OF 2" PVC 0.010" SLOT SCREEN 4'6" OF 2" PVC SOLID 1 EXPANSION CAP 1 SLIDE CAP 1 8" MANHOLE COVER 150# OF SAND 25# OF BENTONITE CHIPS 40# OF CONCRETE			

GROUND SURFACE TO 11'4"

USED HSA

CASING THEN

Sample Type
D-Dry C-Cored W-Washed
UP-Unfinished Piston
TP-Test Pit A-Auger V-Vane Test
UT-Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler
Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
50+ Very Dense
Cohesive Consistency
0-4 Soft 30 + Hard
4-8 M/Stiff
8-15 Stiff
15-30 V-Stiff

summary
EARTH BORING 11'4"
ROCK CORING
SAMPLES 2
HOLE NO. MW-1

M & W Soils Engineering, Inc.

Main St.

Charlestown, NH 03603

SHEET 1 OF 1

DATE 8/18/94

HOLE NO. MW-2

LINE & STA.

OFFSET

TO DUFRESNE-HENRY ENGINEERING

ADDRESS NORTH SPRINGFIELD, VT

PROJECT NAME WESTON TOWN GARAGE

LOCATION WESTON, VT

REPORT SENT TO BRUCE COX

PROJ. NO.

SAMPLE SENT TO RETAINED BY DUFRESNE-HENRY

OUR JOB NO.

6120-94

GROUND WATER OBSERVATIONS

AT DRY AT IMMEDIATELY HOURS

AT 7:5" AT 18 HOURS

Type

Size I. D.

Hammer Wt.

Hammer Fall

CASING

HSA

4 1/4"

SAMPLER

SS

1 1/2"

CORE BAR

BIT

30"

SURFACE ELEV.

DATE STARTED 8/18/94

DATE COMPL. 8/18/94

BORING FORMAN M.D. & R.H.

INSPECTOR B. COX

SOILS ENGR.

LOCATION OF BORING

Depth	CASING BLOWS PER FOOT	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler			MOISTURE DENSITY OF CONSTANT	STRATA CHANGE ELEV.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect	SAMPLE		
				From	To	To				NO.	PEN	REC
5'		0' - 2'	SS	23	12		DRY	1"	ASPHALT PAVEMENT	1	24"	14"
				9	9							
		2' - 4'	SS	4	5				LOOSE BROWN GRAVELLY FINE SAND AND SILT WITH COBBLES	2	24"	12"
				4	9							
		4' - 6'	SS	17	6			5'6"		3	24"	12"
10'				18	30		DRY		VERY DENSE BROWN COARSE TO FINE SANDY GRAVEL	4	12"	12"
		6' - 7'	SS	46	62			8'6"	REFUSAL - BEDROCK OR BOULDER			
									INSTALLED 2" PVC WELL AT 8'5" SLOTTED FROM 3'5"-8'5" WITH 0.010" SLOT SCREEN FILTER SAND TO 2' BENTONITE FROM 1'-2'			
									MATERIALS USED: 5' OF 2" PVC 0.010" SLOT SCREEN 3' OF 2" PVC SOLID 1 EXPANSION CAP 1 SLIDE CAP 1 8" MANHOLE COVER 150# OF SAND 15# OF BENTONITE CHIPS 40# OF CONCRETE			

GROUND SURFACE TO 8'6"

USED HSA

CASING THEN

Sample Type

D-Dry C-Cored W-Washed

UP-Unfinished Piston

TP-Test Pit A-Auger V-Vane Test

UT-Undisturbed Thinwall

Proportions Used

trace 0 to 10%

little 10 to 20%

some 20 to 35%

and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler

Cohesionless Density

0-10 Loose

10-30 Med. Dense

30-50 Dense

50+ Very Dense

Cohesive Consistency

0-4 Soft 30 + Hard

4-8 M/Stiff

8-15 Stiff

15-30 V-Stiff

summary

EARTH BORING 8'6"

ROCK CORING

SAMPLES 4

HOLE NO. MW-2

M & W Soils Engineering, Inc.

Main St.

Charlestown, NH 03603

TO DUFRESNE-HENRY ENGINEERING

ADDRESS NORTH SPRINGFIELD, VT

PROJECT NAME WESTON TOWN GARAGE

LOCATION WESTON, VT

REPORT SENT TO BRUCE COX

PROJ. NO.

SAMPLE SENT TO RETAINED BY DUFRESNE-HENRY

OUR JOB NO. 6120-94

SHEET 1 OF 1

DATE 8/18/94

HOLE NO. MW3/MW3A

LINE & STA.

OFFSET

GROUND WATER OBSERVATIONS
AT DRY AT IMMEDIATELY HOURS

Type

Size I. D.

Hammer Wt.

Hammer Fall

CASING SAMPLER CORE BAR

HSA

4 1/4"

SS

1 1/2"

140#

30"

BIT

SURFACE ELEV.

DATE STARTED 8/18/94

DATE COMPL. 8/18/94

BORING FORMAN M.D. & R.H.

INSPECTOR B. COX

SOILS ENGR.

LOCATION OF BORING

Depth	CASING BLOWS PER FOOT	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler			MOISTURE DENSITY OF CONSTANT	STRATA CHANGE ELEV.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness. Drilling time, seams and ect	SAMPLE		
				From 0-6	6-12	To 12-18				NO.	PEN	REC
5'							MW-3:	6"	TOPSOIL			
									LOOSE DARK BROWN SANDY SILT AND SAND (FILL)			
								4' +/-				
		6' - 7'	SS	36	52		DRY		VERY DENSE BROWN COARSE TO FINE SAND AND GRAVEL WITH COBBLES AND BOULDERS	1	12"	12"
10'								8'9"	REFUSAL - BEDROCK OR BOULDER			
5'							MW-3A:		MOVED 4' NORTH OF MW-3			
									SAME MATERIAL AS MW-3			
								9'	REFUSAL - BEDROCK OR BOULDER			
10'									INSTALLED 2" PVC WELL AT 8'5" SLOTTED FROM 3'5"-8'5" WITH 0.010" SLOT SCREEN FILTER SAND TO 2'6" 6" BENTONITE FROM 1'6"-2'6"			
									MATERIALS USED:			
									5' OF 2" PVC 0.010" SLOT SCREEN			
									4' OF 2" PVC SOLID			
									1 EXPANSION CAP			
									1 SLIDE CAP			
									1 8" MANHOLE COVER			
									150# OF SAND			
									10# OF BENTONITE			
									40# OF CONCRETE			

GROUND SURFACE TO 9'

USED HSA

CASING THEN

Sample Type

D-Dry C-Cored W-Washed

UP-Unfinished Piston

TP-Test Pit A-Auger V-Vane Test

UT-Undisturbed Thinwall

Proportions Used

trace 0 to 10%

little 10 to 20%

some 20 to 35%

and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler

Cohesionless Density

0-10 Loose

10-30 Med. Dense

30-50 Dense

50+ Very Dense

Cohesive Consistency

0-4 Soft 30 + Hard

4-8 M/Stiff

8-15 Stiff

15-30 V-Stiff

summary

EARTH BORING 9'

ROCK CORING

SAMPLES 1

HOLE NO. MW3/MW3A

M & W Soils Engineering, Inc.

Main St.

Charlestown, NH 03603

TO DUFRESNE-HENRY ENGINEERING

ADDRESS NORTH SPRINGFIELD, VT

PROJECT NAME WESTON TOWN GARAGE

LOCATION WESTON, VT

REPORT SENT TO BRUCE COX

PROJ. NO.

SAMPLE SENT TO RETAINED BY DUFRESNE-HENRY

OUR JOB NO.

6120-94

SHEET 1 OF 1

DATE 8/19/94

HOLE NO. MW-4

LINE & STA.

OFFSET

GROUND WATER OBSERVATIONS

AT 7' AT * HOURS

Type

HSA

SS

Size f. D.

4 1/4"

1 1/2"

Hammer Wt.

140#

BIT

Hammer Fall

30"

SURFACE ELEV.

DATE STARTED 8/19/94

DATE COMPL. 8/19/94

BORING FORMAN M.D. & R.H.

INSPECTOR B. COX

SOILS ENGR.

*WELL COMPLETION

AT AT HOURS

LOCATION OF BORING

Depth	CASING BLOWS PER FOOT	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler			MOISTURE DENSITY OF CONSTANT	STRATA CHANGE ELEV.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect.	SAMPLE		
				From	6-12	To				NO.	PEN	REC
5'									ROAD SAND			
									DARK BROWN TOPSOIL AND GRAVELLY SANDY SILT (FILL)			
		5'6" - 6'2"	SS	35	37 1/2"			4' +/-	BROWN SANDY COARSE TO FINE GRAVEL WITH COBBLES AND BOULDERS	1	8"	5"
								8' 2"	REFUSAL - BEDROCK OR BOULDER			
10'									INSTALLED 2" PVC WELL AT 8' SLOTTED FROM 3'-8" WITH 0.010" SLOT SCREEN FILTER SAND TO 2' BENTONITE FROM 1'-2'			
									MATERIALS USED:			
									5' OF 2" PVC 0.010" SLOT SCREEN			
									3' OF 2" PVC SOLID			
									2 EXPANSION CAP			
									1 SLIDE CAP			
									1 8" MANHOLE COVER			
									125# OF SAND			
									25# OF BENTONITE			
									40# OF CONCRETE			

GROUND SURFACE TO 8'2"

USED HSA

CASING THEN

Sample Type

D-Dry C-Cored W-Washed

UP-Unfinished Piston

TP-Test Pit A-Auger V-Vane Test

UT-Undisturbed Thinwall

Proportions Used

trace 0 to 10%

little 10 to 20%

some 20 to 35%

and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler

Cohesionless Density

0-10 Loose

10-30 Med. Dense

30-50 Dense

50+ Very Dense

Cohesive Consistency

0-4 Soft 30 + Hard

4-8 M/Stiff

8-15 Stiff

15-30 V-Stiff

Summary

EARTH BORING 8'2"

ROCK CORING

SAMPLES 1

HOLE NO. MW-4

WESTON TOWN GARAGE
INITIAL SITE INVESTIGATION
WESTON, VERMONT

8/16/94

Dufresne-Henry, Inc. - Bruce Cox on site at 8:30 am.

M & W Soils Engineering, Inc. - Richard Holmes on site at 9:15 am.

I met with Don Hart to discuss boring locations and general work plan. Don provided me a picture of the electric power installation to the new diesel pump and a copy of a portion of a site survey done for the Town.

The calibration of the HNU was checked at 9:15 am

MW-1

Started boring at 9:30 am. The rig and other equipment had been steam cleaned prior to arrival on site. All water used for cleaning split spoons and other tools was brought to the site by the boring contractor and obtained at the Garage. Drilled with 4 1/4" hollow stem augers taking split spoon samples starting at 5'. All samples were screened for VOC's with an HNU HW-101 (10.2 eV lamp, calibrated with isobutylene). Representative soil samples (not for chemical analysis) from each split spoon were stored in clear glass jars and retained by Dufresne-Henry. No visual or olfactory evidence of contamination was observed in the samples or on the tools. PID readings ranged from 2.2 ppm to 4.6 ppm. Total depth of the boring was 12' with refusal on the augers. The water table was encountered at about 10 feet. The general geologic column is silty, gravelly sand with abundant cobbles and boulders. The auger drive mechanism broke at 10:50 am. It could not be repaired on site and work was ceased for the day.

Visitors: Don Hart, Town employees at various times.

Weather: Mostly sunny, 70's, breezy.

Off site: 11:42 pm.

8/18/94

Dufresne-Henry, Inc. (BHC) on site at 8:21 am.

M & W Soils Engineering, Inc. (Myron Domingue, RH) on site at 8:45 am.

MW-1

Installed a 7' long, 2" diameter, .010" machine slotted, threaded, flush joint, Schedule 40 PVC well at 11.1'. All pipe came from factory sealed plastic bags. The annular space was backfilled with clean silica sand to 2'. A bentonite seal was installed from 1' - 2'. A 6" waterproof aluminum monitoring well box was grouted in flush with the surface. All excess soil was disposed of on site.

Materials: 7' of 2", .010" slot, threaded, flush joint, Schd 40 PVC.
3'11" of 2", solid wall, threaded, flush joint, Schd 40 PVC.
150 lb± of silica sand.
25 lb± of bentonite chips.
40 lb± of concrete mix.
1 push-on PVC cap.
1 expanding gasket cap.
1 6" aluminum monitoring well box.

MW-2

Started boring at 11:47 am. Augers not previously used on the site were used. The bit and spoons were washed in ALCONOX prior to reuse. All water used for cleaning split spoons and other tools was obtained at the Garage. Drilled with 4 1/4" hollow stem augers taking continuous split spoon samples starting at the surface. All samples were screened for VOC's with an HNU HW-101 (10.2 eV lamp, calibrated with isobutylene). Representative soil samples (not for chemical analysis) from each split spoon were stored in clear glass jars and retained by Dufresne-Henry. No visual or olfactory evidence of contamination was observed in the samples or on the tools. PID readings ranged from .1 ppm to 2.4 ppm. Total depth of the boring was 9' with refusal on the augers. The water table was encountered at about 7.5 feet. The general geologic column is silty, gravelly sand with abundant cobbles and boulders. Installed a 5' long, 2" diameter, .010" machine slotted, threaded, flush joint, Schedule 40 PVC well at 8.5'. All pipe came from factory sealed plastic bags. The annular space was backfilled with clean silica sand to 2'. A bentonite seal was installed from 1' - 2'. A 6" waterproof aluminum monitoring well box was grouted in flush with the surface. All excess soil was disposed of on site.

Materials: 5' of 2", .010" slot, threaded, flush joint, Schd 40 PVC.
3'3" of 2", solid wall, threaded, flush joint, Schd 40 PVC.
150 lb± of silica sand.
15 lb± of bentonite chips.
40 lb± of concrete mix.
1 push-on PVC cap.
1 expanding gasket cap.
1 6" aluminum monitoring well box.

MW-3

Started boring at 1:40 pm. Augers not previously used on the site were used. The bit and spoons were washed in ALCONOX prior to reuse. All water used for cleaning split spoons and other tools was obtained at the Garage. Drilled with 4 1/4" hollow stem augers taking split spoon samples starting at 6 feet because of cobbles. All samples were screened for VOC's with an HNU HW-101 (10.2 eV lamp, calibrated with isobutylene). Representative soil samples (not for chemical analysis) from each split spoon were stored in clear glass jars and retained by Dufresne-Henry. No visual or olfactory evidence of contamination was observed in the samples or on the tools. PID readings of .2 ppm were observed. Total depth of the boring was 8'9" with refusal on the augers. The water table was encountered at about 8 feet. The general geologic column is silty, gravelly sand with abundant cobbles and boulders. The boring was abandoned and moved

approximately 4 feet northwest. The same conditions were encountered. Refusal on the augers was at 9'. Installed a 5' long, 2" diameter, .010" machine slotted, threaded, flush joint, Schedule 40 PVC well at 8'5". All pipe came from factory sealed plastic bags. The annular space was backfilled with clean silica sand to 2'6". A bentonite seal was installed from 1'6" - 2'6". A 6" waterproof aluminum monitoring well box was grouted in flush with the surface. All excess soil was disposed of on site.

Materials: 5' of 2", .010" slot, threaded, flush joint, Schd 40 PVC.
3'4" of 2", solid wall, threaded, flush joint, Schd 40 PVC.
150 lb± of silica sand.
10 lb± of bentonite chips.
40 lb± of concrete mix.
1 push-on PVC cap.
1 expanding gasket cap.
1 6" aluminum monitoring well box.

Visitors: Town employees at various times.

Weather: rain, 60's.

Off site at 2:35 pm, SEI still on site completing well installation.

8/19/94

Dufresne-henry, Inc. (BHC) on site at 8:21 am.

M & W Soils Engineering, Inc. (MD, RH) on site at 8:49 am.

MW-4

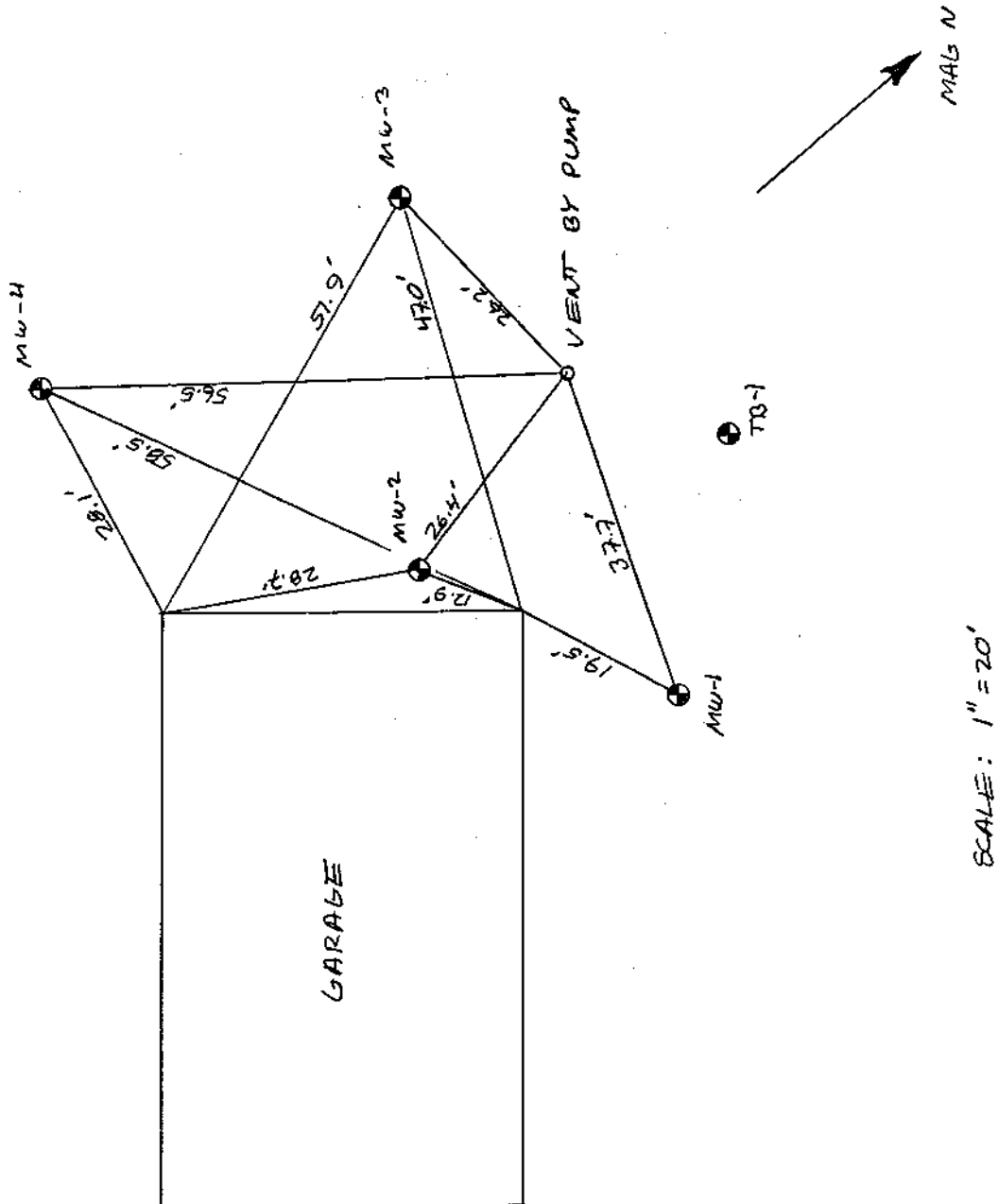
Started boring at 9:17 am. Augers not previously used on the site were used. The bit and spoons were washed in ALCONOX prior to reuse. All water used for cleaning split spoons and other tools was obtained at the Garage. Drilled with 4 1/4" hollow stem augers taking split spoon samples starting at 5'6" due to cobbles. All samples were screened for VOC's with an HNU HW-101 (10.2 eV lamp, calibrated with isobutylene). Representative soil samples (not for chemical analysis) from each split spoon were stored in clear glass jars and retained by Dufresne-Henry. No visual or olfactory evidence of contamination was observed in the samples or on the tools. PID readings ranged of 1.8 ppm were observed. Total depth of the boring was 8' with refusal on the augers. The water table was encountered at about 7.5 feet. The general geologic column is silty, gravelly sand with abundant cobbles and boulders. Installed a 5' long, 2" diameter, .010" machine slotted, threaded, flush joint, Schedule 40 PVC well at 8'. All pipe came from factory sealed plastic bags. The annular space was backfilled with clean silica sand to 21". A bentonite seal was installed from 12" - 21". A 6" waterproof aluminum monitoring well box was grouted in flush with the surface. All excess soil was disposed of on site.

Materials: 5' of 2", .010" slot, threaded, flush joint, Schd 40 PVC.
2'10" of 2", solid wall, threaded, flush joint, Schd 40 PVC.
125 lb± of silica sand.
25 lb± of bentonite chips.
40 lb± of concrete mix.
1 push-on PVC cap.
1 expanding gasket cap.
1 6" aluminum monitoring well box.

Visitors: Town employees at various times.
Weather: Mostly cloudy, 60's - 70's, breezy
Off site at 11:20 am.

DUFRESNE-HENRY, INC.

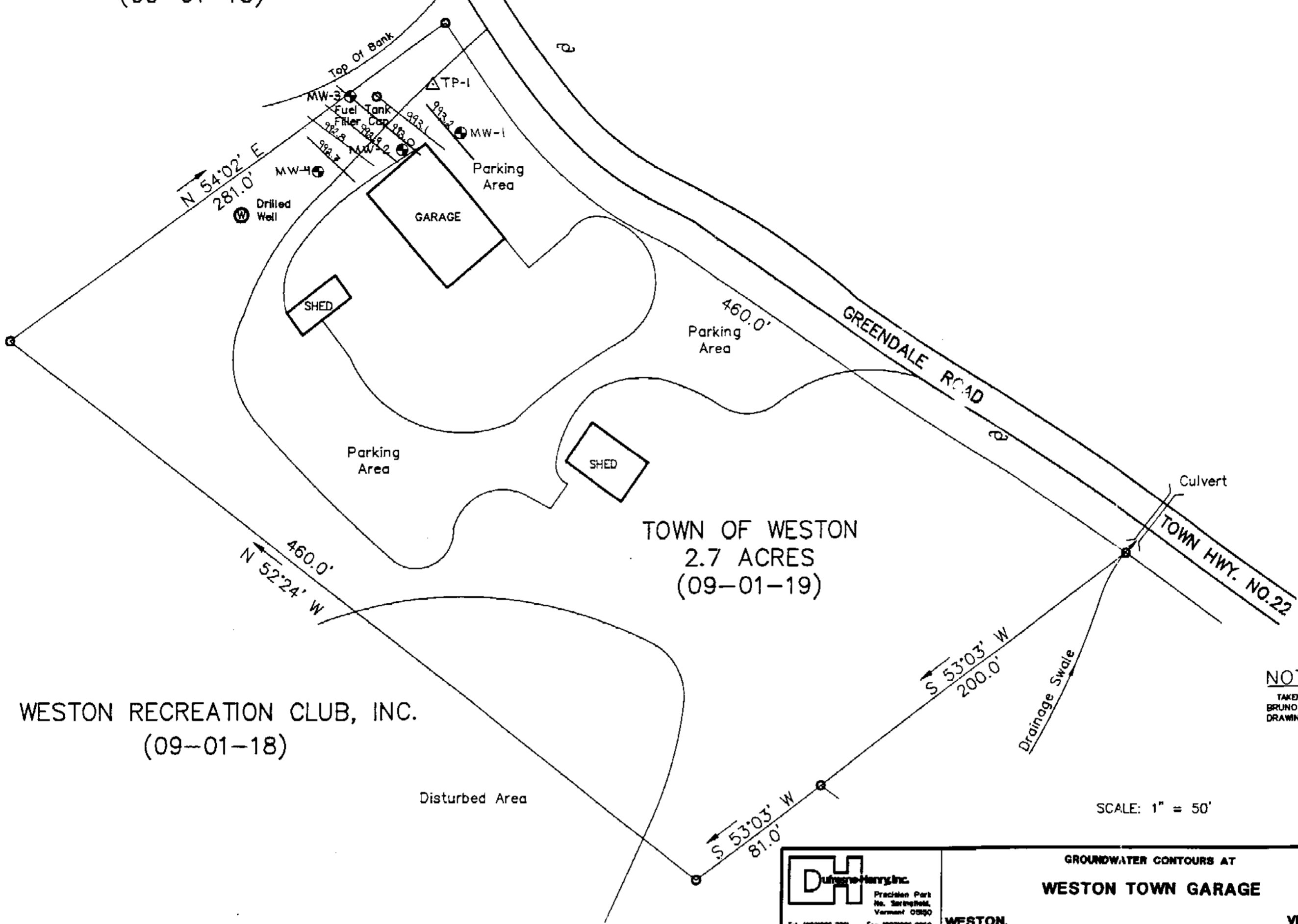
PREPARED BY B. Cox DATE 8/22/94 PROJECT NO. 414032
 CALCULATIONS CHECKED BY _____ DATE _____ SHEET NO. 1 OF 1
 ASSUMPTIONS / METHODS CHECKED BY _____ DATE _____
 SUBJECT WESTON TOWN GARAGE MONITORING WELL LOCATIONS



APPENDIX E

GROUNDWATER CONTOUR MAP

WESTON RECREATION CLUB, INC.
(09-01-18)



WESTON RECREATION CLUB, INC.
(09-01-18)



GROUNDWATER CONTOURS AT
WESTON TOWN GARAGE

WESTON,

VERMONT

Project No.	414032
Proj. Mgr.	B.H.C.
Date	SEPT. '94

APPENDIX F

CONTRACT LABORATORY ANALYTICAL REPORTS

9/07/94

Department of Environmental Conservation Laboratory
Method 8240 - Volatile Organics in Water

GJD

Lab Id: 11078 Report To: OSCAR GARCIA
Location: WESTON TOWN GARAGE MW-1

Phone: 886-2261 Date Collected: 8/23/94
Program: 41 1622 Chain of Custody? No

Notes:

Date Analyzed: 8/31/94 Over hold? No Dilution factor: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	10	N.D.				
Chloromethane	10	N.D.				
Bromomethane	10	N.D.				
Chloroethane	10	N.D.				
Trichlorofluoromethane	10	N.D.				
Acetone	100	N.D.				
1,1-Dichloroethene	5	N.D.				
Carbon disulfide	100	N.D.				
Methylene chloride	5	N.D.				
Methyl-t-butylether (MTBE)	10	N.D.				
1,2-Dichloroethene	5	N.D.				
1,1-Dichloroethane	5	N.D.				
Vinyl acetate	50	N.D.				
2-Butanone	100	N.D.				
Chloroform	5	N.D.				
1,1,1-Trichloroethane	5	N.D.				
Carbon tetrachloride	5	N.D.				
Benzene	5	N.D.				
1,2-Dichloroethane	5	N.D.				
Trichloroethene	5	N.D.				
1,2-Dichloropropane	5	N.D.				
Bromodichloromethane	5	N.D.				
4-Methyl-2-pentanone	50	N.D.				
cis-1,2-Dichloropropene	5	N.D.				
Toluene	5	N.D.				
trans-1,3-Dichloropropene	5	N.D.				
1,1,2-Trichloroethane	5	N.D.				
2-Hexanone	50	N.D.				
Tetrachloroethene	5	N.D.				
Dibromochloromethane	5	N.D.				
Chlorobenzene	5	N.D.				
Ethylbenzene	5	N.D.				
Xylenes	5	N.D.				
Styrene	5	N.D.				
Bromoform	5	N.D.				
1,1,2,2-Tetrachloroethane	5	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

1,2-Dichloroethane-D4 102% D8-Toluene 108% 4-Bromofluorobenzene . 102%

Notes: Capillary column used with EPA approval.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

9/07/94

Department of Environmental Conservation Laboratory
Method 8240 - Volatile Organics in Water

GJD

Lab Id: 11079 Report To: OSCAR GARCIA
Location: WESTON TOWN GARAGE MW-2

Phone: 886-2261 Date Collected: 8/23/94
Program: 41 1622 Chain of Custody? No

Notes:

Date Analyzed: 8/31/94 Over hold? No Dilution factor: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	10	N.D.				
Chloromethane	10	N.D.				
Bromomethane	10	N.D.				
Chloroethane	10	N.D.				
Trichlorofluoromethane	10	N.D.				
Acetone	100	N.D.				
1,1-Dichloroethene	5	N.D.				
Carbon disulfide	100	N.D.				
Methylene chloride	5	N.D.				
Methyl-t-butylether (MTBE)	10	N.D.				
1,2-Dichloroethene	5	N.D.				
1,1-Dichloroethane	5	N.D.				
Vinyl acetate	50	N.D.				
2-Butanone	100	N.D.				
Chloroform	5	N.D.				
1,1,1-Trichloroethane	5	N.D.				
Carbon tetrachloride	5	N.D.				
Benzene	5	N.D.				
1,2-Dichloroethane	5	N.D.				
Trichloroethene	5	N.D.				
1,2-Dichloropropane	5	N.D.				
Bromodichloromethane	5	N.D.				
4-Methyl-2-pentanone	50	N.D.				
cis-1,2-Dichloropropene	5	N.D.				
Toluene	5	N.D.				
trans-1,3-Dichloropropene	5	N.D.				
1,1,2-Trichloroethane	5	N.D.				
2-Hexanone	50	N.D.				
Tetrachloroethene	5	N.D.				
Dibromochloromethane	5	N.D.				
Chlorobenzene	5	N.D.				
Ethylbenzene	5	N.D.				
Xylenes	5	N.D.				
Styrene	5	N.D.				
Bromoform	5	N.D.				
1,1,2,2-Tetrachloroethane	5	N.D.				
Total Volatile Hydrocarbons	100	1070	E			

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

1,2-Dichloroethane-D4 102% D8-Toluene 106% 4-Bromofluorobenzene . 100%

Notes: Capillary column used with EPA approval. Sample contains aliphatic hydrocarbons.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

9/07/94

Department of Environmental Conservation Laboratory
Method 8240 - Volatile Organics in Water

GJD

Lab Id: 11080 Report To: OSCAR GARCIA
Location: WESTON TOWN GARAGE MW-3

Phone: 886-2261 Date Collected: 8/23/94
Program: 41 1622 Chain of Custody? No

Notes:

Date Analyzed: 8/31/94 Over hold? No Dilution factor: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	10	N.D.				
Chloromethane	10	N.D.				
Bromomethane	10	N.D.				
Chloroethane	10	N.D.				
Trichlorofluoromethane	10	N.D.				
Acetone	100	N.D.				
1,1-Dichloroethene	5	N.D.				
Carbon disulfide	100	N.D.				
Methylene chloride	5	N.D.				
Methyl-t-butylether (MTBE)	10	N.D.				
1,2-Dichloroethene	5	N.D.				
1,1-Dichloroethane	5	N.D.				
Vinyl acetate	50	N.D.				
2-Butanone	100	N.D.				
Chloroform	5	N.D.				
1,1,1-Trichloroethane	5	N.D.				
Carbon tetrachloride	5	N.D.				
Benzene	5	N.D.				
1,2-Dichloroethane	5	N.D.				
Trichloroethene	5	N.D.				
1,2-Dichloropropane	5	N.D.				
Bromodichloromethane	5	N.D.				
4-Methyl-2-pentanone	50	N.D.				
cis-1,2-Dichloropropene	5	N.D.				
Toluene	5	N.D.				
trans-1,3-Dichloropropene	5	N.D.				
1,1,2-Trichloroethane	5	N.D.				
2-Hexanone	50	N.D.				
Tetrachloroethene	5	N.D.				
Dibromochloromethane	5	N.D.				
Chlorobenzene	5	N.D.				
Ethylbenzene	5	N.D.				
Xylenes	5	N.D.				
Styrene	5	N.D.				
Bromoform	5	N.D.				
1,1,2,2-Tetrachloroethane	5	N.D.				
Total Volatile Hydrocarbons	100	298	E			

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

1,2-Dichloroethane-D4 104% D8-Toluene 104% 4-Bromofluorobenzene . 98%

Notes: Capillary column used with EPA approval. Samples contains aliphatic hydrocarbons.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

9/07/94

Department of Environmental Conservation Laboratory
Method 8240 - Volatile Organics in Water

GJD

Lab Id: 11081 Report To: OSCAR GARCIA
Location: WESTON TOWN GARAGE MW-4

Phone: 886-2261 Date Collected: 8/23/94
Program: 41 1622 Chain of Custody? No

Notes:

Date Analyzed: 8/31/94 Over hold? No Dilution factor: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	10	N.D.				
Chloromethane	10	N.D.				
Bromomethane	10	N.D.				
Chloroethane	10	N.D.				
Trichlorofluoromethane	10	N.D.				
Acetone	100	N.D.				
1,1-Dichloroethene	5	N.D.				
Carbon disulfide	100	N.D.				
Methylene chloride	5	N.D.				
Methyl-t-butylether (MTBE)	10	N.D.				
1,2-Dichloroethene	5	N.D.				
1,1-Dichloroethane	5	N.D.				
Vinyl acetate	50	N.D.				
2-Butanone	100	N.D.				
Chloroform	5	N.D.				
1,1,1-Trichloroethane	5	N.D.				
Carbon tetrachloride	5	N.D.				
Benzene	5	N.D.				
1,2-Dichloroethane	5	N.D.				
Trichloroethene	5	N.D.				
1,2-Dichloropropane	5	N.D.				
Bromodichloromethane	5	N.D.				
4-Methyl-2-pentanone	50	N.D.				
cis-1,2-Dichloropropene	5	N.D.				
Toluene	5	N.D.				
trans-1,3-Dichloropropene	5	N.D.				
1,1,2-Trichloroethane	5	N.D.				
2-Hexanone	50	N.D.				
Tetrachloroethene	5	N.D.				
Dibromochloromethane	5	N.D.				
Chlorobenzene	5	N.D.				
Ethylbenzene	5	N.D.				
Xylenes	5	N.D.				
Styrene	5	N.D.				
Bromoform	5	N.D.				
1,1,2,2-Tetrachloroethane	5	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

1,2-Dichloroethane-D4 102% D8-Toluene 98% 4-Bromofluorobenzene . 96%

Notes: Capillary column used with EPA approval.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

9/07/94

Department of Environmental Conservation Laboratory
Method 8240 - Volatile Organics in Water

GJD

Lab Id: 11082 Report To: OSCAR GARCIA
Location: WESTON TOWN GARAGE DWPhone: 886-2261 Date Collected: 8/23/94
Program: 41 1622 Chain of Custody? No

Notes:

Date Analyzed: 9/01/94 Over hold? No Dilution factor: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	10	N.D.				
Chloromethane	10	N.D.				
Bromomethane	10	N.D.				
Chloroethane	10	N.D.				
Trichlorofluoromethane	10	N.D.				
Acetone	100	N.D.				
1,1-Dichloroethene	5	N.D.				
Carbon disulfide	100	N.D.				
Methylene chloride	5	N.D.				
Methyl-t-butylether (MTBE)	10	N.D.				
1,2-Dichloroethene	5	N.D.				
1,1-Dichloroethane	5	N.D.				
Vinyl acetate	50	N.D.				
2-Butanone	100	N.D.				
Chloroform	5	N.D.				
1,1,1-Trichloroethane	5	N.D.				
Carbon tetrachloride	5	N.D.				
Benzene	5	N.D.				
1,2-Dichloroethane	5	N.D.				
Trichloroethene	5	N.D.				
1,2-Dichloropropane	5	N.D.				
Bromodichloromethane	5	N.D.				
4-Methyl-2-pentanone	50	N.D.				
cis-1,2-Dichloropropene	5	N.D.				
Toluene	5	N.D.				
trans-1,3-Dichloropropene	5	N.D.				
1,1,2-Trichloroethane	5	N.D.				
2-Hexanone	50	N.D.				
Tetrachloroethene	5	N.D.				
Dibromochloromethane	5	N.D.				
Chlorobenzene	5	N.D.				
Ethylbenzene	5	N.D.				
Xylenes	5	N.D.				
Styrene	5	N.D.				
Bromoform	5	N.D.				
1,1,2,2-Tetrachloroethane	5	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

1,2-Dichloroethane-D4 104% D8-Toluene 96% 4-Bromofluorobenzene . 94%

Notes: Capillary column used with EPA approval.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

9/07/94

Department of Environmental Conservation Laboratory
Method 8240 - Volatile Organics in Water

GJD

Lab Id: 11083 Report To: OSCAR GARCIA
Location: WESTON TOWN GARAGE TRIP BLANK

Phone: 886-2261 Date Collected: 8/23/94
Program: 41 1622 Chain of Custody? No

Notes:

Date Analyzed: 9/01/94 Over hold? No Dilution factor: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Vinyl chloride	10	N.D.				
Chloromethane	10	N.D.				
Bromomethane	10	N.D.				
Chloroethane	10	N.D.				
Trichlorofluoromethane	10	N.D.				
Acetone	100	N.D.				
1,1-Dichloroethene	5	N.D.				
Carbon disulfide	100	N.D.				
Methylene chloride	5	N.D.				
Methyl-t-butylether (MTBE)	10	N.D.				
1,2-Dichloroethene	5	N.D.				
1,1-Dichloroethane	5	N.D.				
Vinyl acetate	50	N.D.				
2-Butanone	100	N.D.				
Chloroform	5	N.D.				
1,1,1-Trichloroethane	5	N.D.				
Carbon tetrachloride	5	N.D.				
Benzene	5	N.D.				
1,2-Dichloroethane	5	N.D.				
Trichloroethene	5	N.D.				
1,2-Dichloropropane	5	N.D.				
Bromodichloromethane	5	N.D.				
4-Methyl-2-pentanone	50	N.D.				
cis-1,2-Dichloropropene	5	N.D.				
Toluene	5	N.D.				
trans-1,3-Dichloropropene	5	N.D.				
1,1,2-Trichloroethane	5	N.D.				
2-Hexanone	50	N.D.				
Tetrachloroethene	5	N.D.				
Dibromochloromethane	5	N.D.				
Chlorobenzene	5	N.D.				
Ethylbenzene	5	N.D.				
Xylenes	5	N.D.				
Styrene	5	N.D.				
Bromoform	5	N.D.				
1,1,2,2-Tetrachloroethane	5	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

1,2-Dichloroethane-D4 108% D8-Toluene 108% 4-Bromofluorobenzene . 98%

Notes: Capillary column used with EPA approval.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

RECEIVED
AUG 26 1994

DUFRESNE-HENRY, INC.

\027: _____

Submitted by: OSCAR GARCIA Phone: 886-2261 Date Collected: 8/23/94
Lab Report to: OSCAR GARCIA Custody: N Date Submitted: 8/24/94
Program #: 41 Activity code: 1622 Date Required: 9/21/94

Notes:

**** Tests Requested ****

W8240

Lab Id	Location	Lab Id	Location
11078	WESTON TOWN GARAGE MW-1	11079	WESTON TOWN GARAGE MW-2
11080	WESTON TOWN GARAGE MW-3	11081	WESTON TOWN GARAGE MW-4
11082	WESTON TOWN GARAGE DW	11083	WESTON TOWN GARAGE TRIP BLANK

[illegible]